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Report 10392A
July 1994

GENCORP
AEROJET

IN-43

Earth Observing System (EOS) Advanced Microwave Sounding Unit-A (AMSU-A) Schedule Plan

Contract No. NAS5-32314
CDRL: 004

Submitted to:

National Aeronautics and Space Administration
Goddard Space Flight Center
Greenbelt, Maryland 20771

Submitted by:

Aerojet
1100 W. Hollyvale Street
Azusa, California 91702

Aerojet

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(NASA-CR-194856) EARTH OBSERVING SYSTEM (EOS) ADVANCED MICROWAVE SOUNDING UNIT-A (AMSU-A) SCHEDULE PLAN Final Report (Aerojet-General Corp.) 69 p

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Section 1

INTRODUCTION

This report, submitted under Contract NAS5-32314, Contract Data Requirements List (CDRL) item 004, consists of the following elements:

a. A description of the EOS/AMSU-A schedule plan

b. A copy of the formal operating procedures used internally for the preparation and maintenance of Master, Intermediate, and Detail schedules, included as Appendix A

c. A Critical Path analysis (end-item float report)

d. A Program Master Schedule, included as Appendix B

e. A Design Phase Schedule, included as Appendix C

f. An Intermediate Level Production Phase Schedule, included as Appendix D

g. A 90-day Window Schedule, included as Appendix E, and

h. A Total Program Logic Network Diagram, included as Appendix F

Section 2

SCHEDULE PLAN

2.1 SCHEDULE SYSTEM DESCRIPTION - HARDWARE

At Aerojet the Artemis scheduling system software runs on an IBM Model 3090 mainframe computer in the multi-variable system/time-sharing option (MVS/TSO) operating system environment. Individual IBM compatible personal computers (PC) with Intel© 386 microprocessors are remotely located in each Program Scheduler's office. These PC are connected to the mainframe with terminal emulation software, of which Aerojet is using a number of different packages. Currently the most widely used program is called 3270, but it will soon be replaced by a Microsoft Windows compatible program called "**RUMBA**". This new program has proved to be much more flexible with operations, such as file transfer from mainframe to PC, and PC environment workstation control. Graphic plot files can be transferred down to a PC using either RUMBA or 3270, and then plotted on an output device using Artemis DOS-based PC software called "**AR-PLOT**". Output peripherals available include: individual HP LaserJet Series II and III printers for each Program Scheduler, local Printronix Hi-Speed Line Printers accessible through the mainframe, a Calcomp Electrostatic Color 36 Plotter accessible through the mainframe, and an HP 7596 Draftmaster Rollfeed 36 Plotter accessible through a designated PC. The LaserJet printers are generally used to plot bar charts (Gantt charts), and numerous forms of axis-based statistical graphs; e.g., histograms, XY graphs, pie charts, profiles, etc. The larger Calcomp and HP Draftmaster plotters are generally used to plot out large network logic diagrams (PERT charts) that require a linear or variable time scale.

2.2 SCHEDULE SYSTEM DESCRIPTION - SOFTWARE

Artemis Planning 9000, version 9.4.1, is a powerful, easy-to-use and adaptable project management software system for IBM mainframes.

2.2.1 Fundamental Capabilities of Artemis Planning 9000

Planning 9000 provides full critical path method (CPM) functions for project planning. Up to 256,000 activities, constraints, and resources may be included in a project network with a total system maximum of 999 projects. Multiple networks can be linked for analysis and resource scheduling. A number of resource requirements can be assigned to an activity, allowing the build up of simple or complex resource profiles. Resources can either be recurring or consumable and can be

entered as teams rather than individual resources. Resource scheduling can be time- or resource-limited.

a. Multiple calendars can be defined by the user to accommodate any combination of working patterns; e.g., periods of work, rest, public holidays and vacations.

b. Handles single or multiple projects in a hierarchy of up to 14 levels of planning.

c. Two or more projects can be combined into one overall multi-project.

d. Menu-driven, PC-style user interface for ease of learning, with on-line help facilities and full use of function keys.

e. Three different data input modes:

   1. Standard data entry screens that allow users to add or modify network activities, constraints, resource requirements, items, and activity prog-ress.

   2. The Network Editor allows a project network to be entered or modified in a simple format where activities are added together with the logic constraints that connect them and resource requirements can also be added.

   3. The Table Editor is a full screen editor that presents selected project data in a spreadsheet or tabular form for entry or updating. When the Table Editor menu option is chosen, the user is prompted for the type of data to be edited, and can select which specific data items or fields are to be displayed.

f. What if. ...? simulation capabilities for single or multi-projects.

g. Within a particular line of business, projects often consist of repetitive, similar components or sub-assemblies. For these cases Planning 9000 allows model projects to be stored, in which the WBS elements, activities, logic, and (optionally) resources are pre-defined. Creating a new project is then a matter of filling in the details specific to the new situation.

h. Activities can be broken down into a number of work items. These can represent tasks or individual items associated with the activity, such as technical drawings or materials. Target dates can be set from items to activities and required dates or vice versa. Physical progress can be recorded at work-item level and rolled up to activity level using weighting factors.

i. More than 100 reports are available to present project status, history, and forecasts in tabular or graphical form.

j. Planning 9000 is written in the ARTEMIS language. It can be customized and expanded using the well documented and structured ARTEMIS source code to meet the exact and unique project control requirements of any program.

2.2.2 Additional Capabilities of Artemis 9000

Another capability available in the ARTEMIS 9000 Network Scheduling System is the probabilistic time analysis of a network schedule (PAN) using a random number generator and the Monte Carlo statistical simulation method. PAN is an excellent tool available to management for use in program schedule risk assessment. The purpose of PAN is to take into account the inherent uncertainty of the durations of individual activities within a network when assessing the timescale of a program. This enables the user to evaluate such critical factors as the likely spread of end dates or the probability of achieving targets. PAN can be used in any network where the exact duration of some or all activities is unknown but where it is possible to say that the duration of each activity is likely to fall within a certain range. Normal ARTEMIS time analysis does not cope with this situation as it uses a single fixed value for each duration. It is therefore impossible to discover the effect on the whole network of the individual variabilities using only normal (deterministic) time analysis. PAN performs a probabilistic time analysis of a network, taking into account the variability of individual activity durations as well as all the factors accounted for in normal ARTEMIS time analysis. If each of a number of activities can vary in duration, then the number of different

combinations of durations forming the network can become very large and each will have a different probability of occurring.

Time analyzing each combination separately would be an enormous task. The Monte Carlo method is a statistical method for generating durations that represent this very large number of combinations and their individual probabilities. This is known as simulation. Probabilistic time analysis involves performing a large number of time analyses on the same network using a different set of durations for the activities each time. The durations are generated by PAN, using a random number generator, according to parameters specified by the user for each activity. The parameters provided by the user are an optimistic (minimum), most likely and a pessimistic (maximum) duration for each key activity in the network. By performing a large number of time analyses in this way, a model of the network with variable durations is built up which statistically represents the variation of the original parameters. This model can then provide information on the likely effects on the whole network or on individual critical activities. Key reports can be generated which show a Gaussian (bell-shaped) distribution of delivery dates with the probabilities of achieving each of these dates in the distribution.

2.2.3 ARTEMIS "PRESENTS"

Artemis Presents is a PC Windows-based graphics integrator and editor used to combine and integrate text and graphics with any size plot file to enhance schedules, slides, and overhead transparencies. This program accepts input from any application producing Hewlett-Packard Graphics Language (HPGL or HPGL/2) or ASCII plot files. Using Presents we can combine HPGL or ASCII plot files with text files and add our own graphic elements and text to create custom presentations. At Aerojet, ARTEMIS Planning 9000 Gantt charts are created on the IBM mainframe and converted to ASCII files before being downloaded to the Presents program on a local PC.

2.2.4 SCHEDULE SYSTEM PMS COMPLIANCE

The Artemis Planning 9000 scheduling system at Aerojet complies with our internal PMS system in the following ways.

a. Identifies major tasked work required to accomplish program objectives in accordance with the CWBS (including major contract end items of hardware and software deliveries).

b. Identifies all work tasks and milestones with precise start and stop calendar dates.

c. Identifies incoming and outgoing interfaces to each activity (work task). This is accomplished through the standard procedure of building logical dependencies between activities in a precedence network (PERT network).

d. Establishes baseline (original planned) schedule dates for all activities (tasks).

e. Provides current status and forecasts completion dates for scheduled work in comparison to the baseline planned schedule.

f. Updates and takes the status of the program network schedule at least once a month. Currently the network is being updated twice a month. This will increase to weekly after production starts.

2.2.4.1 Baseline Schedules

Performance measurement baseline schedule dates are established at program inception during the original program planning stages. These dates can only be revised to incorporate: changes in contract scope of work; formal reprogramming changes approved by the procuring agency; and internal replanning approved by the Program Manager. In the ARTEMIS network scheduling system the original plan is built into a network schedule using logical dependencies between activities (tasks and milestones). This network is then analyzed and the computer generates the original planned dates. In ARTEMIS these dates are called the Early Start and Early Finish schedule dates. At this point the Program Scheduler sets the computer-generated Early Start and Early Finish dates equal to the baseline dates with an internal Artemis software command. The baseline dates in Artemis are termed Original Early Start (compares to Early Start) and Original Early Finish (compares to Early Finish). As the network is updated over time, the computer-generated Early Start and Early Finish dates can change. These changes will represent the LRE (latest revised estimate) dates for each activity. However, the baseline dates Original Early Start and Original Early Finish dates will not change. The baseline dates can only be changed manually by the Program Scheduler using an ARTEMIS software command.

2.2.5 Managing Projects with Planning 9000

Planning 9000 is a tool that will be used to plan and control projects effectively. It will be used to:

a. Schedule and manage projects with several thousand activities
b. Define how activities relate to one another
c. Identify the critical paths of projects
d. Provide schedule control and analysis
e. Perform "*what-if..?*" simulations
f. Define special codes to organize project information in desired ways
g. Create customized project reports that suit project needs

2.2.5.1 Project Management Concepts

A project is a collection of interrelated work elements or activities that must be completed to achieve specific program goals. Project management includes planning, scheduling, tracking, controlling, analyzing, and evaluating these activities to successfully accomplish each goal.

Each work activity takes a certain amount of time to complete. Some activities may proceed simultaneously, while others cannot start until previous activities are completed. The order of activities is defined by placing logic constraints between them. The constraints define how activities relate to each other.

2.2.5.2 Phases of Project Management

There are two major phases in managing projects with Planning 9000: planning and controlling.

During the project planning phase, Planning 9000 is used to build a plan for each project. The plan describes the activities, constraints, and project items that can be anticipated to be involved in the project. It also includes putting together how the project is structured for both the work that needs to be done and the organization responsible for the work.

The objectives and, in turn, the scope of each project are broken down into more manageable pieces of work, especially for larger projects such as EOS/AMSU-A. This breakdown provides a framework for both planning and controlling.

After entering the project data, various calculations can be performed to determine a schedule for the project. These can be adjusted, changing the details of activities or project items, until the plan reflects the most accurate expectations of the actual project. This effort will continue in greater detail once the project begins.

Once work begins on a project, Planning 9000 can be used to control the project; that is, to track actual progress and compare it to the original plan. By tracking the dates on which activities actually start and finish, an accurate record can be kept of the project's progress. Similarly, tracking through the various levels of the work breakdown structure (WBS) can be accomplished. Based on progress and new information about work yet to be done, one can more easily anticipate how the program will proceed to successful completion.

2.2.5.2.1 **Planning The Project** - The critical path is the most widely used technique for planning the activities of a project. It uses a network diagram to show all the activities and how they depend on each other. The method supported by Planning 9000 is the *precedence diagramming method*. The ***precedence diagramming method*** depicts activities as boxes that an be connected using four different types of logic constraints. The result is a *precedence network*.

Precedence networks are sometimes termed *activity on node networks* because each activity is presented as a node or box as shown in Figure 1. Activity boxes are connected to one another by arrows, or constraints, showing the logic progress of work.

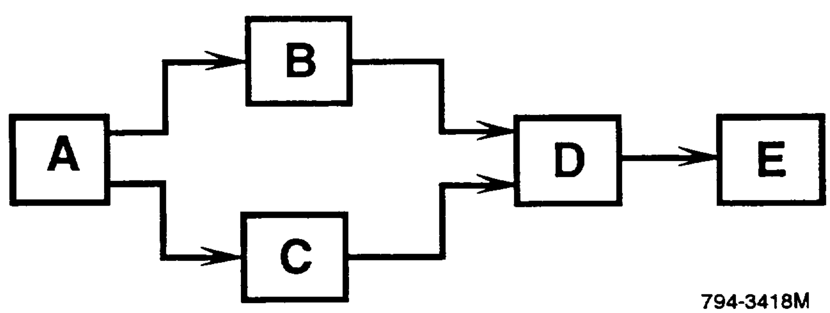

Figure 1 Sample Precedence Network

The logic constraints identify the relationships between activities. They also define the point at which an activity can begin based on a preceding or concurrent activity, and therefore define the order in which activities occur, allowing critical activities to be identified and more closely monitored.

2.2.5.2.1.1 Activities - An activity is an operation or process that consumes time and possible resources. The essential details of an activity are:

a. An identifying code
b. The estimated duration of the work involved.

Additional information, such as a description, start and finish dates, and resource requirements are also provided for an activity. An activity may also consist of multiple items that are required to complete the activity.

2.2.5.2.1.2 Constraints - In a precedence network, the logical dependencies between activities are represented as arrows between nodes and are called logic constraints. The logic constraints identify the relationships between project activities. They also define the point at which an activity can begin based on a preceding or concurrent activity and therefore define the order in which activities occur. Planning 9000 also allows durations to be specified and delays to be specified for constraints.

Planning 9000 supports four types of constraints, as described in the following subparagraphs.

2.2.5.2.1.2.1 Finish-To-Start Constraints - This is the most commonly used type of constraint, where the start of an activity depends on the finish of the preceding one. It will specify whether the second activity can start immediately, or whether there must be a delay. In Figure 2 the arrow indicates activity B cannot start until activity A has finished.

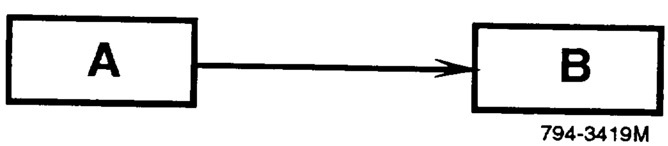

Figure 2 Finish-To-Start Constraint

2.2.5.2.1.2.2 Finish-To-Finish Constraints - The activity cannot finish until the finish of the preceding activity. In Figure 3, the arrow indicates that activity A cannot finish until activity B has been completed. This type of constraint is used in defining hammock activities.

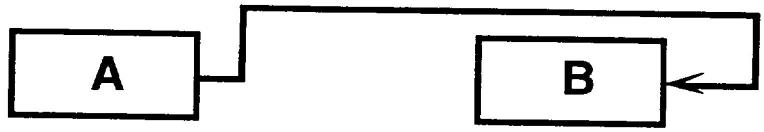

Figure 3 Finish-To-Finish Constraint

2.2.5.2.1.2.3 **Start-to-Start Constraints** - The activity cannot start until the start of the preceding activity. In Figure 4, the arrow indicates that activity B cannot start until activity A has started. This type of constraint can be used in identifying hammock activities.

Figure 4 Start-To-Start Constraint

2.2.5.2.1.2.4 **Start-To-Finish Constraints** - The activity cannot finish until the start of the preceding activity. In Figure 5, the arrow indicates that activity B cannot finish until Activity A has started.

Figure 5 Start-To-Finish Constraint

Each of these constraints has been used in the schedules contained in this report.

2.2.5.2.1.3 **Schedule Activities** - In the schedule, activities have been scheduled and their related constraints against time established to determine their start and finish dates. Planning 9000 has used time analysis to calculate these dates as well as the project end date and the network's critical path.

During time analysis, Planning 9000 has calculated the start and finish dates for each activity in the schedule based on its duration, logic constraints, and project calendar. The project calendar will also identify days or hours on which no work occurs, such as rest days or holidays. For example, one group of activities may be worked on five days a week, and another group of activities may be worked on six days a week. These two groups will be supported by two different project calendars after the detailed schedule has been completed.

2.2.5.2.1.4 **Total Float** - In addition to calculating start and finish dates, Planning 9000 has determined the total float for each activity. The total float represents the amount of time an activity may be delayed without affecting the overall project completion date as illustrated in Figure 6. Activities with negative total float are not achievable given the specified project completion date and network logic, and Planning 9000 flags the fact that appropriate adjustments will have to be made.

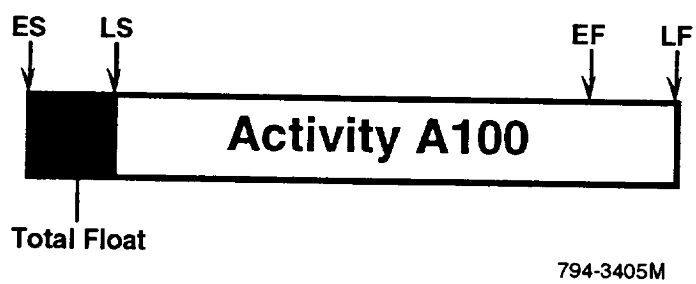

Figure 6 Sample Total Float

2.2.5.2.1.5 **Critical Activities** - In Planning 9000, activities with zero or less total float are called *critical activities*. Any delay to one of these activities will delay the entire project. Together the critical activities form the critical path of the project. Monitoring of these activities closely will be required to keep the overall project on schedule.

Figure 7 provides an example of an Artemis network that shows critical-path activities and illustrates the flexibility of the network system. Any WBS activity can be excerpted from the overall network and provided in the format shown. The bold blocks are elements in the critical path. These elements stand out clearly when the overall network is viewed. Note also the use of constraints: Activity A200 cannot begin until Activity A100 finishes.

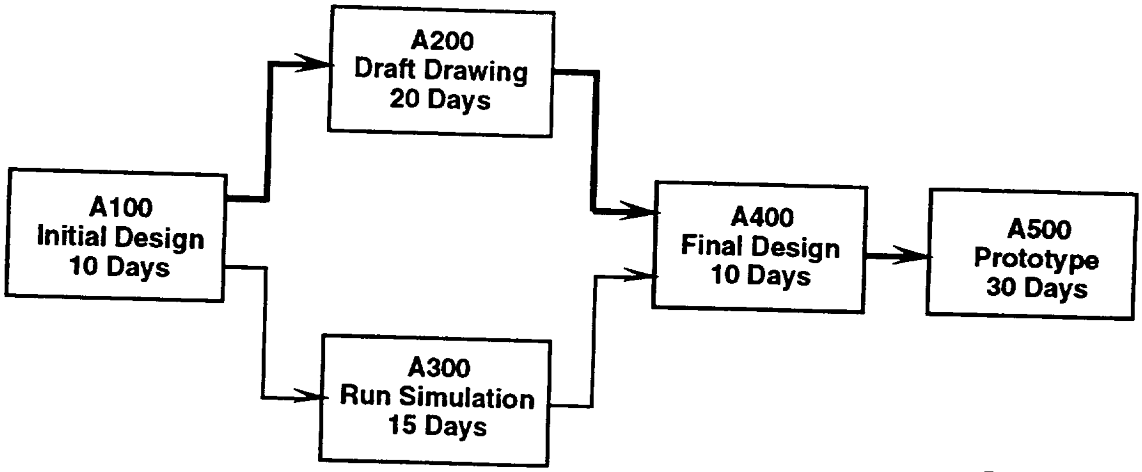

Figure 7 Sample of Critical Path and Constraints in a Segment of the Detailed Schedule

2.2.5.3 **Controlling the Project.** - After the program schedule reflects plans for activities has been accurately determined, the control phase of program management will be started. The program plan will be stored as the original schedule. Planning 9000 will use the original schedule to create comparison reports, once the project is underway.

2.2.5.4 **Work Progress** - As the project proceeds, the time progress can be monitored on the activities using:

a. Actual start dates
b. Actual finish dates
c. Remaining duration (or work still to be completed)
d. Percentage complete of original duration.

After entering progress information, the project will re-analyze using a *time now*. Time now is the date that Planning 9000 uses as the starting date for date calculations. If information is entered up to a certain date, that date will be used as time now. With reported progress and time now, a new schedule will be calculated for the remaining work, and reports generated that reflect the project's current status.

2.3 SCHEDULE HIERARCHY

The schedule hierarchy at Aerojet consists of: the Tier I Program Master Schedule; the Tier II Program Intermediate Schedule; and the Tier III Program Network Detail Schedules. These schedules are all based on the detailed program network database. The intermediate schedule

tiers up from the detail schedules and the master schedule tiers up from the intermediate schedule. The master schedule is directly traceable down to the intermediate schedule and the intermediate schedule traces directly down to the detail schedules. The master schedule can also be traced directly and indirectly down to the detail schedules. See Figure 8 for a flow down chart of the schedule hierarchy. At Aerojet the ARTEMIS software has been customized to create master and intermediate schedules (bar charts) derived from all of the activities contained in the detail schedules. Key activities in the program network are manually coded with letters and numbers in a user-defined field contained within the network database. Similar activities are grouped together with the same code and summarized at a higher level. As an example, all activities of the Receiver Subsystem or the Antenna Subsystem would be coded together. The software will then select the earliest start date and the latest finish date of the like-coded activities and draw a bar on a Gantt chart representing those dates. This bar then summarizes all of the lower-level activities of that specific subsystem. One set of codes is generated for the summarized master schedule activities and another set of more detailed codes is generated for the summarized intermediate activities.

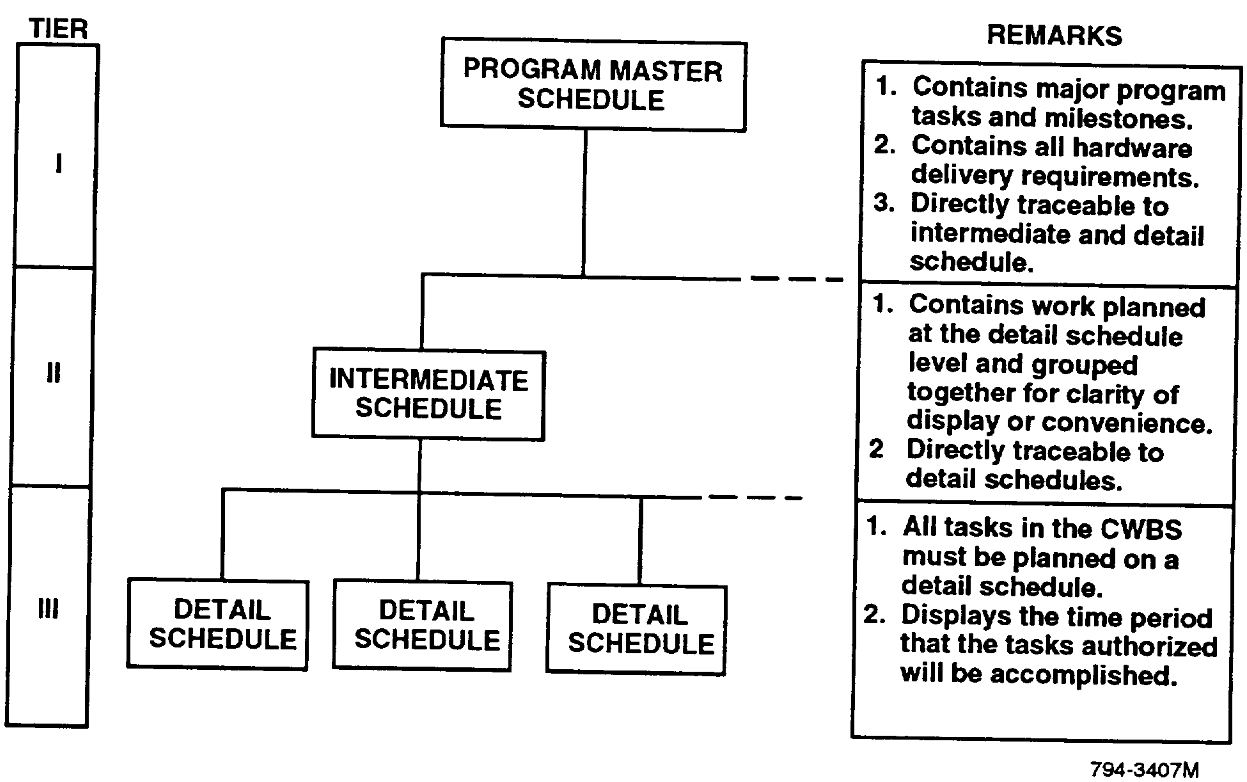

Figure 8 Schedule Hierarchy

As a minimum, the Program Master Schedule should contain all contract hardware delivery requirements and all major program tasks and milestones. This could translate into a schedule with as little as five activities on one page to as many as 25 activities per page spread over two pages. The Program Intermediate Schedule should contain all activities in the master schedule coupled with all activities summarized at a subsystem level. This level of schedule could contain as few as three and as many as a dozen pages with approximately twenty activities per page. The detailed schedules must contain as many activities as necessary to plan all tasks in the CWBS.

2.4 SCHEDULE CORRELATION WITH THE CWBS

The design phase of the EOS/AMSU-A detailed network schedule is basically set-up and organized by Product Teams and Product Team Leaders. The Product Teams are organized to correlate very closely to the CWBS. (See the Project Management Plan, CDRL 001, for a specific correlation matrix). In the design phase, detailed activities schedules are subdivided by Product Teams and by cost account. These subdivisions are directly traceable to the CWBS. The Gantt charts are specifically subdivided by CWBS, and in most cases by cost account with sub-headers down the page containing a description of the sub-divided work element and the last 6 digits of the cost account number. The first three of the last four digits of the cost account number match the corresponding CWBS number. For example in cost account number 4170-67-<u>224</u>1, the underlined numbers 224 match the CWBS number 2.2.4, Power Subsystem. On the Gantt chart the sub-header for this cost account reads "EOS Power Subsystem - DC/DC Converter (67-2241)". Please see the example page of the detailed Gantt chart, Figure 9, and an example of the CWBS, Figure 10, to compare the correlation of the detailed schedule to the CWBS.

A description of the roll-up and vertical traceability capabilities built into the CWBS structure is provided in the Performance Measurement System Implementation Plan and System Description, CDRL 003, Program Instruction 003B, titled "Contract Work Breakdown Structure".

2.5 SCHEDULE SYSTEM AND SUBCONTRACTOR DATA

Early in the procurement phase of the EOS/AMSU-A program, the Materiel Program Manager will generate and publish a critical long-lead material report. This report will contain expected delivery dates for subcontractor hardware not yet under contract, and committed hardware delivery dates for vendors under contract. It will be updated and published on a bi-weekly basis and distributed to the Program Manager, all hardware Product Team leaders, and the Program Scheduler. For detailed material and production planning, Aerojet utilizes Manufacturing Resource Planning II (MRP II). Original purchase order delivery dates and changes to delivery dates by

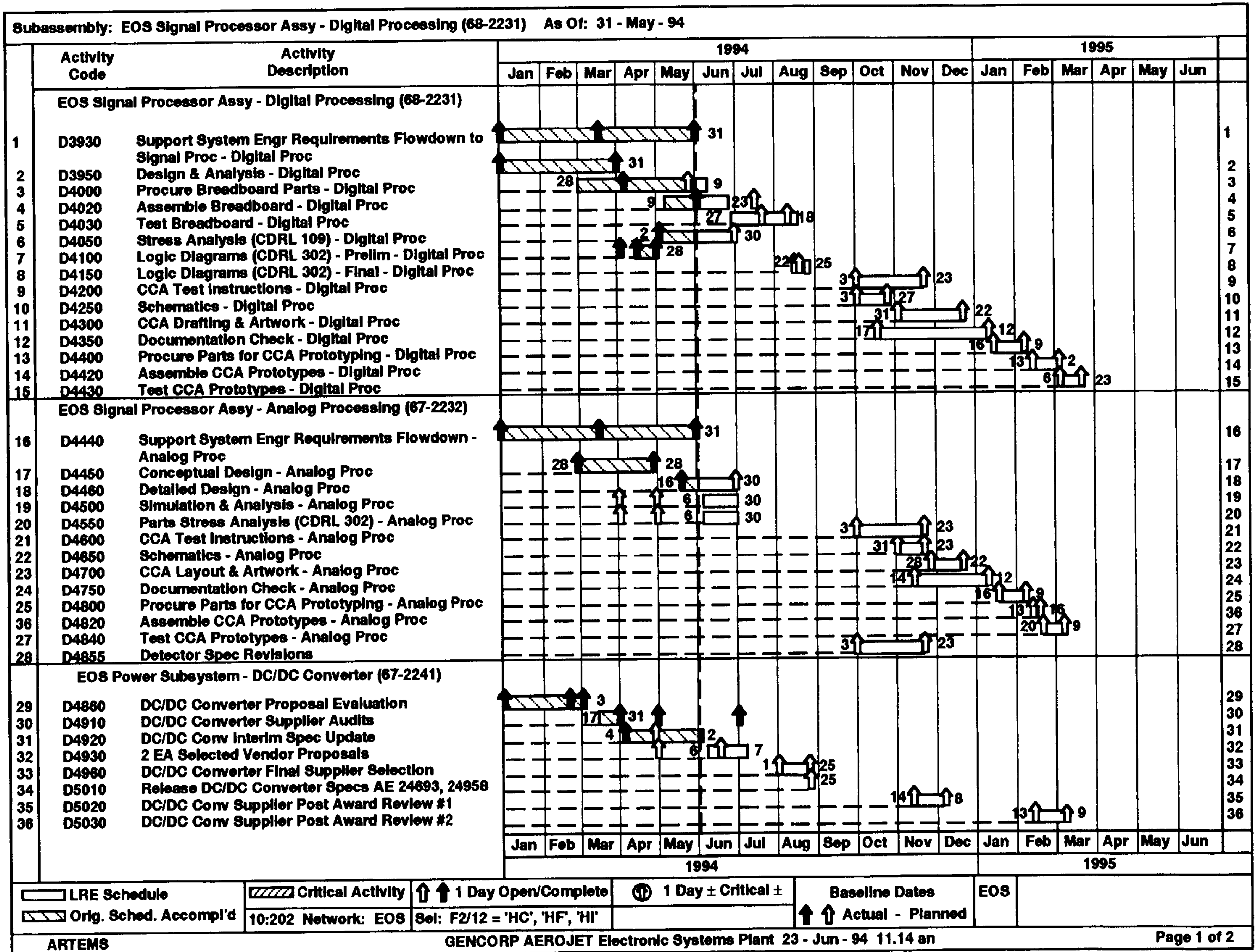

Figure 9 Sample Gantt Chart, EOS/AMSU-A

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EOS/AMSU-
Work Breakdown S

- 1.0 Project Management
  - 1.1 Project Office
  - 1.2 Engineering Management
  - 1.3 Resources Management
    - 1.3.1 Business Management
    - 1.3.2 Procurement
  - 1.4 Documentation
    - 1.4.1 Specs/Test Plans/Proc
    - 1.4.2 Technical Publications
    - 1.4.3 Data Management
- 2.0 Instrument Systems Eng
  - 2.1 System Engineering
    - 2.1.1 System Requirements
    - 2.1.2 System Design Analysis
    - 2.1.3 S/C Interface
    - 2.1.4 Systems Plan And Proc
    - 2.1.5 OPS and Maint Manual
    - 2.1.6 System Engineering Supt
  - 2.2 Electronics Subsystem Design
    - 2.2.1 Receiver
    - 2.2.3 Signal Processor Assy
      - 2.2.3.1 Digital Processing
      - 2.2.3.2 Analog Processing
    - 2.2.4 Power Subsystem
    - 2.2.5 Integ SPA/PC Design
  - 2.3 Mechanical Design
  - 2.4 Thermal Design
  - 2.5 Antenna Subsystem Design
    - 2.5 .1 Antenna
    - 2.5 .2 Drive Motor
  - 2.6 Firmware Development
- 3.0 Reserved
- 4.0 Protoflight Model
  - 4.1 Mech/Struct Elem Fal
  - 4.2 Electronics Fabricatio
    - 4.2.1 Receiver Assemt
    - 4.2.2 Pre-Amp, SPA, Pc
    - 4.2.6 PLO
  - 4.3 Antenna/Antenna Driv
  - 4.4 Thermal Control Subs
  - 4.5 Subassembly Functio
    - 4.5.1 Electronics
    - 4.5.2 Antenna
  - 4.6 Assembly/Subassembl
  - 4.7 PF Model Integ & Testi
    - 4.7.1 Refurbish After T
    - 4.7.2 Test Ops Support
    - 4.7.3 Test - SE Support
  - 4.8 Manufacturing Suppor
  - 4.9 Protoflight Material

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Figure 10 EOS/AMSU-A

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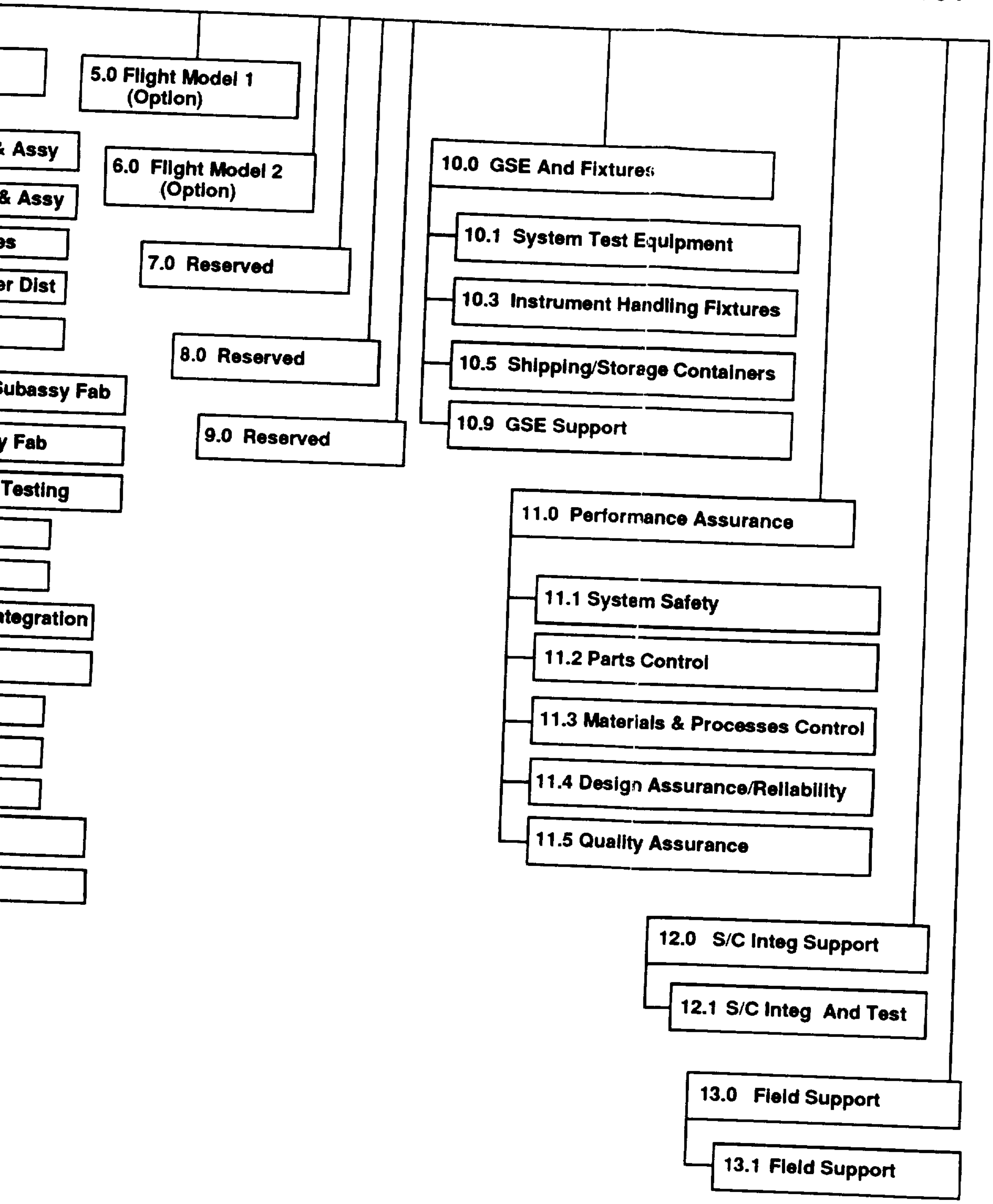

rk Breakdown Structure

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subcontractors and vendors are entered by the responsible buyers into the MRP II computer database. As the start of production nears, the Program Material Planner will utilize MRP II data to generate and publish a production material shortage report. This report will contain critical long-lead hardware, long-lead material, and any material not yet stocked but needed for upcoming material releases to the manufacturing assembly areas. This report will be updated and distributed on a weekly basis to the above-mentioned personnel and to other interested parties. Delivery dates in all material shortage reports are derived from the latest data in the MRP II database.

Subcontractor data for specific parts are represented in the detailed program network schedule by individual activities showing start dates for purchase order placement and finish dates for the delivery of hardware to stock. The program scheduler keys in the delivery dates from the material shortage list into the EOS/AMSU-A ARTEMIS schedule database. The program scheduler also has the option to obtain on a part-by-part basis the latest material delivery dates on-line from the MRP II database through his office PC.

2.6 SCHEDULE ARCHIVES

Each program scheduler at Aerojet archives in their office file cabinet a copy of every detailed program bar chart that they are responsible for publishing. These bar charts can become very useful for the current program or future programs as historical reference tools. Another archive tool available is the capability to store ARTEMIS program network data in the MVS/TSO operating system running on the IBM mainframe. This is accomplished by exporting the key program database files from ARTEMIS 9000 to a TSO user-named dataset. These files are then stored in the operating system for possible future retrieval and use in ARTEMIS. This procedure has been used successfully on previous programs, but its use is not anticipated for the EOS/AMSU-A program.

2.7 SCHEDULE ORGANIZATION AT AEROJET

The EOS/AMSU-A Program Master Scheduler reports to the Manager of Program Master Scheduling and Rough Cut Capacity Planning. This manager reports to the Director of the Integrated Planning Department, who in turn reports to the Aerojet Vice President, Azusa Operations. This organization is shown in Figure 11. The Program Master Scheduler is assigned to the EOS/AMSU-A team, and is co-located with the Program Manager and most of the Product Team Leaders. He is directly responsible to the EOS/AMSU-A Program Manager for all program network scheduling activities. He coordinates with the Program Manager and the Product Team Leaders for the purpose of generating a detailed program network schedule. After the detailed baseline network schedule is generated, status must be taken and the network updated on a periodic basis. To do this

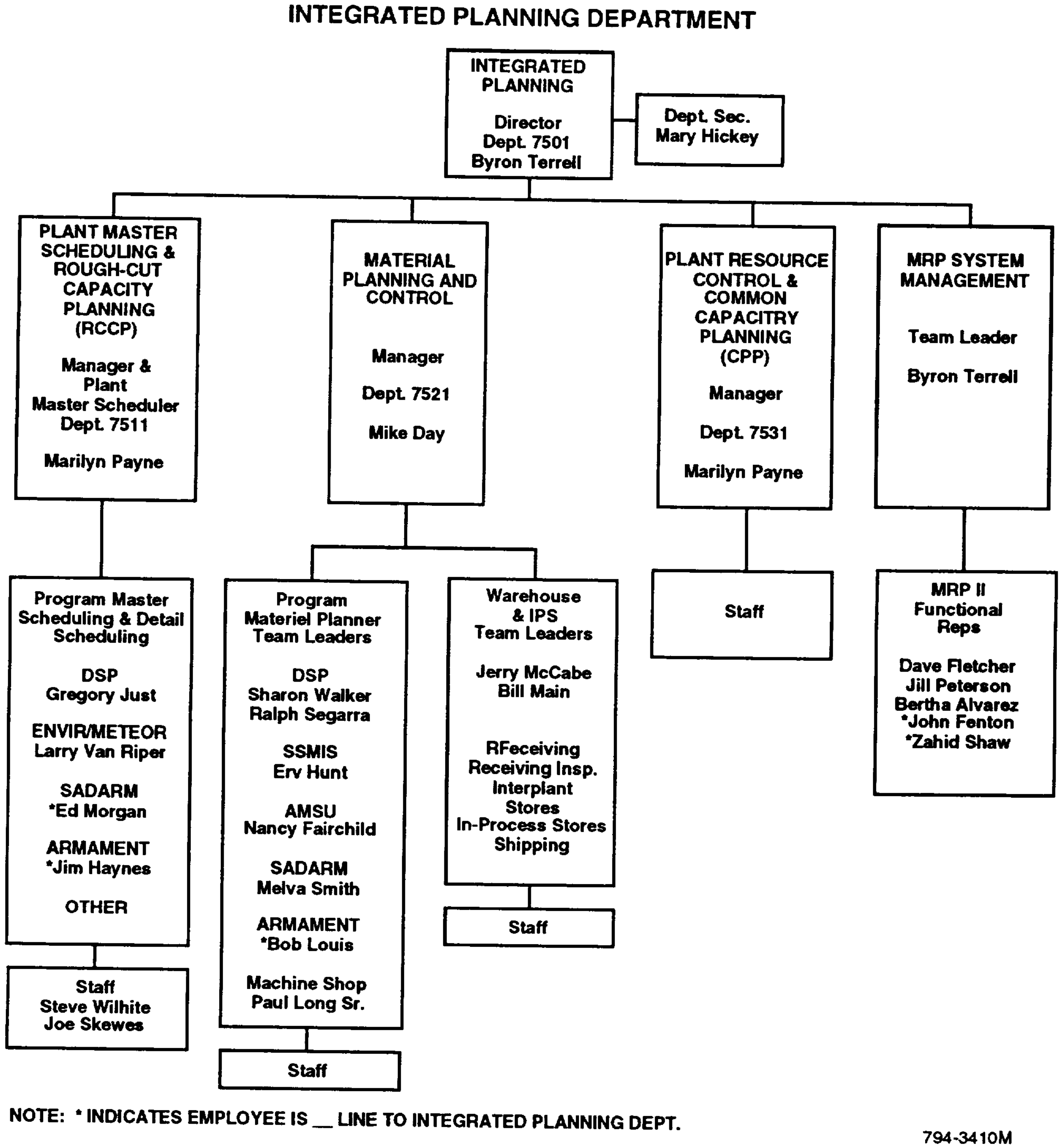


Figure 11 Integrated Planning Department

the Program Master Scheduler regularly interfaces and coordinates with the Product Team Leaders and the Program Manager. He also supports and helps the Product Team Leaders with any questions or special requests they may have regarding their own specific sections of the network schedule. The EOS/AMSU-A Business Manager also requires support from the Program Master Scheduler to ensure that the detailed network schedule complies with all PMS and C/SCSC requirements, and that the PMS detailed planning matches the detailed schedules. The master scheduler directly supports the Program Manager with any assistance needed regarding all scheduling matters at any level of the schedule hierarchy. This includes schedule charts required for internal Aerojet management reviews, NASA quarterly and bi-annual reviews, and special studies. scheduling matters at any level of the schedule hierarchy. This includes schedule charts required for internal Aerojet management reviews, NASA quarterly and bi-annual reviews, and special studies.

2.7.1 Program Master Scheduler Responsibilities

The Program Master Scheduler's primary responsibilities are to:

a. Develop and maintain the EOS/AMSU-A detailed precedence network (PERT network) in an ARTEMIS 9000 database.

b Generate and print-out logic diagrams (PERT charts) as required.

c. Status and update the network database and generate detailed program bar charts on an established periodic basis.

d. Develop, generate, and maintain Tier I and Tier II Master and Intermediate schedules on an as-required basis (as a minimum, monthly).

f. Help in identifying interfaces between the different hardware/product teams, and determine how to incorporate those interfaces into the network database logic.

g. Assess how changes by one product team will affect other teams and possibly the overall network schedule.

h. Identify and monitor the top critical paths in the network database.

i. Keep the Program Manager informed in a timely manner of changes or impacts to the top critical paths.

2.8 SCHEDULE DEVELOPMENT AND ADMINISTRATION

The design phase of the program network schedule was developed by the Program Master Scheduler with direct input from the Product Team Leaders and the Program Manager. This input directly corresponds to the WBS and the PMS input. The production phase of the network schedule was mostly developed by the Program Master Scheduler using history from the current NOAA AMSU-A program. Additional inputs from the Manufacturing Team Leader and the Program Manager regarding new designs, new in-house make hardware and new objectives were also used. The Program Master Scheduler transferred all of the above inputs into the proper format and added them into the Artemis Network Scheduling software to produce a finished product. A logically driven program network schedule with the usual output of various levels of bar charts and a logic network diagram resulted. This network will be statused and updated on a bi-weekly basis during the design phase, and on a weekly basis during the production phase. Status updates are identified and discussed during bi-weekly budget and schedule status meetings between the Program Manager and individual Product Team Leaders. The schedule status and updates from these meetings are then directly communicated to the Program Master Scheduler from the Product Team Leaders.

2.9 SCHEDULE MANAGEMENT

One of the principal approaches to schedule management on this program will be to monitor and manage the top critical paths in the detailed program network schedule. Since all of the top critical paths are driven by subcontracted long-lead hardware procurement, the control and management of these long-lead subcontracts is a major key to the overall success of the program.

A basic approach in establishing the design phase of the program schedule was to set up the formal design reviews as significant milestones and then feed all design activities into the appropriate design review. In this way the progress of design activities can be tracked and compared to the schedule of their corresponding design reviews. Float or slack time can be calculated and compared to the need dates of the significant milestones.

Another method of schedule management used on this program is the Program Manager's bi-weekly status meetings with individual Product Team Leaders. At these meetings all aspects (technical, schedule, and cost) of individual product team progress are reviewed. Problems encountered in any of these areas are discussed and solutions worked in a timely manner.

2.10 Critical Path Analysis

All critical elements of the Integrated Program Schedule can be shown on the Master Time-Phased Task Network. Most important of these are: Critical Paths, Long-Lead Items, and Significant Milestones.

2.10.1 Critical Paths

Before each coordination meeting and at any other time in the program, the Artemis data base is commanded to produce a detailed time-phased task network showing the key critical paths.

These critical paths can then be combined by the Artemis program onto simplified GANTT charts showing the waterfall of tasks along each critical path. Table I is a list of critical paths for the beginning of the Implementation Phase, showing the critical element of the path, and the subsequent dependent task.

2.10.2 Long-Lead Items

These critical paths are predominantly involved with subcontracted items, and Program Management has incorporated a schedule pad (Management Red Time) into each subcontracted procurement. The use of this Red Time represents an additional safety factor over the float between the arrival of the item and the subsequent need date.

Table I Top Six Critical Paths Support Instrument Delivery Time With Significant Management Red Time

Critical Path	Item/For	Supplier Promise	Added Red Time	Instrument Delivery Slack Time (Float)
1	Be Reflector/A2 Antenna	15 months	7 months	0 weeks
2	SAW Filters/A1-1 Shelf	16 months	6 months	6 weeks
3	GDO/PLO (Aerojet)	14 months	6 months	8 weeks
4	DC/DC Converter/A1 Assembly	21 months	6 months	10 weeks
5	DC/DC Converter/A2 Assembly	21 months	6 months	13 weeks
6	DROs & DGOs/A1 Assembly	16 months	6 months	22 weeks

As stated above, the critical paths are predominantly involved with subcontracted items. In the detailed Artemis Master Time-Phased Task Network, all major elements of the subcontracting effort are entered into the data base, and are tracked along with their affect on other tasks. Elements that are tracked are:

a. Specification and SOW preparation and release

b. Subcontractor bid time

c. Bid assessment and award time

d. Subcontractor lead time, including time required to bring item in-house and make it available to the next process.

As stated above, Program Management has incorporated a schedule pad (Management Red Time) into each procurement. This Red Time represents an additional safety factor over the pad between the arrival of the item and the subsequent need date (shown as Float).

2.10.3 Significant Milestones

The Master Time-Phased Task Network is structured from milestone to milestone. During the Engineering Phase, the major milestones are design reviews. During the Production Phase, the major milestones are: Calibration Peer Reviews, Software Test Readiness Review, Pre-Environmental Test Review, Software Acceptance Review, Post-Environmental Test Review, and Pre-Shipment Review.

These milestones (and others, if required) are defined as fixed dates in the Artemis data base, and all dependent events and their durations are driven by those dates. GANTT and Network output reports are coded to flag any conflicting task for management's attention. The software can output critical paths to any interim milestones as well as the critical paths to the final completion date.

Section 3

SCHEDULE OUTPUT TO GSFC

Aerojet can output schedule data to GSFC in many varied forms. The most common formats would be bar charts at the Master, Intermediate and detailed level. Other formats include logic diagram charts (PERT charts) and any number of computer line-printed schedule reports. Currently Aerojet is providing GSFC with a one page bar chart copy of the program Master schedule and a multi-page bar chart copy of the detailed design phase of the program network schedule. These schedules are being mailed to GSFC on a monthly basis. Copies of the production phase of the detailed network schedule, in bar chart format, are available to GSFC on an as-requested basis; however, as the production phase of the contract nears, those schedules will also be mailed to GSFC on a monthly basis.

As a result of a cooperative team effort, GSFC and Aerojet have recently completed development of a software file in ASCII format that is compatible with both the ARTEMIS 9000 software system used at Aerojet and the ARTEMIS PRESTIGE software system used at GSFC. Therefore Aerojet is now sending to GSFC the detailed design phase of the network schedule in ASCII file format on a 3.5 floppy disk, and will continue to do so on a monthly basis along with the other paper schedules.

3.1 Operating Procedures

Appendix A is a copy of the formal operating procedures used internally for the preparation and maintenance of Master, Intermediate, and Detail schedules at Aerojet.

Report 10392A
July 1994

APPENDIX A

MASTER, INTERMEDIATE, AND DETAIL SCHEDULES -

PREPARATION AND MAINTENANCE

Appendix A

Master, Intermediate, and Detail Schedules - Preparation and Maintenance

Aerojet
Electronic Systems Division

TITLE			
Master, Intermediate, and Detail Schedules – Preparation and Maintenance			C/SCS Program Instruction 008D
APPROVED BY	EFFECTIVE DATE		
M. A. Citro	01 November 1990		
	SUPERSEDES PI	DATED	PAGE NUMBER
	008C	19 January 1987	1 of 5

1. <u>Purpose</u>

1.1 To establish policy, responsibility and procedures for the preparation and maintenance of master, intermediate, and detail schedules for programs requiring implementation of DoDI 5000.2-M.

2. <u>Policy</u>

2.1 All C/SCS programs shall establish and maintain a scheduling system for the work authorized in the contract work breakdown structure (CWBS). This system shall schedule the authorized work in a manner which describes the sequence of work and identifies the significant task interdependicies required to meet the development, production, and delivery requirements of the contract.

2.2 A program master schedule shall be developed by the Program Office to be used as the framework for all underlying schedules.

2.2.1 The master schedule shall contain all contract dates including contractual milestones and events, major subcontract dates, major hardware delivery dates and dates for government-furnished equipment or services.

2.2.2 Program Control, under the direction of the program manager, shall be responsible for the preparation, statusing and change control of the master schedule.

2.2.3 The master schedule shall reflect and be directly traceable to the tasks specified in the CWBS.

2.2.4 The master schedule will be the basis used by functional managers and cost account managers to establish subordinate schedules.

2.3 Intermediate schedules shall be required for all C/SCS programs.

2.3.1 Intermediate schedules shall be developed to define the tasks required to accomplish the program milestones shown in the master schedule.

2.3.2 Significant decision points, constraints and interfaces shall be identified as key milestones and included in the intermediate schedules.

2.3.3 All milestones and events shall integrate and tier to the master schedule.

2.3.4 Intermediate schedules shall provide a logical sequence from the master schedule to the detail schedules at the cost account level.

2.3.5 Intermediate schedules may be structured to display either product, CWBS or functional oriented tasks.

2.3.5.1 Engineering and Manufacturing schedules may be considered intermediate schedules or detail schedules depending on the level of detail included on the schedule.

2.4 Detail schedules at the cost account level shall be mandatory for all tasked accounts.

2.4.1 A detail schedule shall be prepared for each planned work package that uses discrete or apportioned performance measurement techniques.

2.4.2 The C/SCS Budget Plan and Detail Schedule form shown in attachment 1 shall be used for work package schedules prepared manually.

2.4.2.1 The use of automated scheduling systems is encouraged and recommended for large programs.

2.4.2.2 To avoid redundancy and to eliminate the confusion of having two schedules, an automated schedule may replace the use of the detail schedule included on the budget plan.

2.4.3 Detail schedules shall not be required for LOE cost accounts or planning packages.

2.4.3.1 The detail schedule portion of the budget plan and detail schedule (attachment 1) shall be left blank.

2.4.3.2 A start and completion date shall be required on the budget plan.

2.4.4 Work packages shall be scheduled in terms of physical accomplishment by using calendar dates to identify cost account and work package start and completion dates.

2.4.5 Detail schedules shall integrate and tier to intermediate schedules and the master schedule.

2.4.6 Detail schedules shall identify interfaces that recognize significant constraints and relationships to key milestones and activities.

2.4.6.1 Incoming and outgoing interfaces shall be identified on the C/SCS budget plan and detail schedule (attachment 1).

2.4.7 Meaningful (objective) indicators shall be identified for cost/schedule correlation and performance measurement determination.

2.4.8 Cost account managers (CAMs) are responsible for the preparation and statusing of detail schedules.

2.5 The master, intermediate, and detail schedules shall provide current status and forecast completion dates for scheduled work in comparison to the baseline (planned) schedule.

2.6 The frequency of statusing and updating schedules shall be determined by the program manager and set forth in a program directive.

2.6.1 To identify the status of work in a timely manner, detail schedules shall be statused at least once a month.

2.6.2 On a monthly basis, significant differences between planned (baseline) and actual schedule accomplishment shall be identified and the reasons explained in accordance with the procedures established for variance reporting under PI 015.

2.6.3 Planned schedule represents the timephased performance measurement baseline. Actual schedule accomplishment including forecasted schedules should be in accordance with the timephased estimate to complete.

2.7 Schedules are implemented and categorized in four tiers.

Tier I	Master Program Schedule
Tier II	Intermediate Schedules
Tier III	Detail Schedules – Cost Account or Work Package Level
Tier IV	Subwork Package Level

2.7.1 The hierarchy of the schedule tiers is shown in attachment 2.

2.7.2 A schedule matrix defining schedule authority, responsibility, update frequency and requirements, and format requirements is shown in attachment 3.

3. Procedures

3.1 The program master schedule is established by the Program Office and published through a program directive immediately following authority to proceed.

3.1.1 The program master schedule is used by all cost account managers as the baseline for the preparation of detail schedules.

3.1.2 The program master schedule is used to establish the Tier II intermediate schedules.

3.1.3 All changes or updates to the master schedule must be approved and controlled by the program manager.

3.2 Intermediate schedules are established concurrently with the program master schedule by the Program Office.

3.2.1 Functional managers use the Tier II intermediate schedules to develop functional schedules.

3.2.2 All changes or updates to the Tier II intermediate schedules must be approved and controlled by the program manager as specified in a program directive.

3.3 Detail schedules (Tier III) are prepared for all tasked cost accounts and work packages by the responsible CAM.

3.3.1 Detail schedules shall track the progress of individual cost accounts with key milestones traceable to the intermediate schedules and the master schedule.

3.3.2 The CAM ensures that all cost accounts and work packages contain specific start and completion dates that integrate with higher level schedules.

3.3.3 Detail schedules are statused by the CAM and submitted to the Program Office at least on a monthly basis coinciding with the end of the accounting month.

3.3.3.1 The frequency of statusing and submission is set forth in a program directive as discussed in paragraph 2.6.

3.3.3.2 The status of the detail schedules is used by the Program Office in determining the status of higher level schedules.

3.3.3.3 Program Control shall publish the current statused detail schedules and distribute to all affected personnel.

3.3.4 The program control schedule group reviews the traceability and accuracy of the detail schedules on a continual basis to ensure integrity with the program master and intermediate schedules, and with the work package activity report.

3.4 Tier IV subwork package schedules are optional and may be used at the discretion of the CAM.

3.4.1 No standard schedule technique or standard form is required for Tier IV schedules.

3.4.2 CAMs are encouraged to use lower level planning documents than are required by this C/SCS PI.

3.4.3 All start and completion calendar dates for Tier IV schedules must tier to Tier III schedules.

3.5 The control, approval, and documentation of schedule changes is established by the program manager and set forth in a unique program directive.

3.6 The definitions, symbology, and terminology to be used for statusing schedules is established by the program manager and set forth in a program directive.

3.6.1 When standards are not established by the customer, the program manager may use symbols and terminology that conform to acceptable industry standards.

3.6.2 An example of a preferred standard is shown in attachment 4.

3.7 All program control scheduling groups are encouraged to utilize any automated scheduling capabilities available at AESD, such as ARTEMIS, PROMIS, or PRIMAVERA.

SCHEDULE AUTHORITY, RESPONSIBILITY, AND UPDATE MATRIX

Schedule	Tier	Authorizing Documents	Responsibility-Authority: Establishment	Responsibility-Authority: Maintenance	Update Requirements	Update Frequency	Format Requirements	Applicable Documents
Program Master Schedule	I	Program contract and any contractual changes	Program manager by program directive (PD)	Program Control by program instruction 008	To incorporate contractual requirements To incorporate task or event changes having no impact on contractual requirements	Upon receipt of contractual changes As specified by program directive	As specified in program directive Preferred format is computerized Gantt or network chart	DoDI 5000.2-M APD 3.04 PI 004
Intermediate Schedule	II	Program directive	As designated in program directive	As designated in program directive	As specified in program directive To incorporate master or detail changes	As specified in program directive When impacted by Master or detail changes	As specified in program directive	APD 7.06
Detail Schedule	III	Program directive PI 006 PI 013	As designated in program directive PI 006 PI 013	As designated in program directive PI 006	To incorporate program manager's directed changes To incorporate contractual changes Work statusing	As specified in program directive and PI 006	As specified in program directive	APD 7.06 PI 004
Subwork Package Schedule	IV	Program directive APD 7.01	APD 7.01 APD 7.06	As required	As required	As required		APD 7.02 through APD 7.08

Aerojet
Electronic Systems Division

TITLE			
Program Management Networks (PMN)			C/SCS Program Instruction 010C
APPROVED BY	EFFECTIVE DATE		
M. A. Citro	2 March 1987		
	SUPERSEDES PI	DATED	PAGE NUMBER
	010B	01 May 1980	1 of 3

1. **Purpose**

   1.1 To establish policy, responsibility and procedure for implementing and maintaining program management networks (PMN) for those programs requiring implementation of DoDI 5000.2-M.

   1.2 To define the relationship between PMN and detailed, intermediate, and master schedules.

   1.3 To define the relationship between PMN and the contract work breakdown structure (CWBS).

2. **Policy**

   2.1 The program manager is responsible for ensuring that program management networks (PMN) are implemented and maintained on programs where they are a contractual or internal requirement.

   2.2 The program manager shall specify the time period that PMNs are revised to show current program status. This status update period shall conform to the applicable internal or contractual requirements.

   2.3 The program manager shall be responsible for ensuring that the PMN is constructed using logic that represents, and is traceable to, the currently authorized cost account/work package plan.

   2.4 The program control scheduling group shall be responsible (at the program manager's direction) for constructing, periodic statusing, analyzing, and publishing the PMN.

   2.5 PMN shall be produced using computerized time-analysis techniques. It is recommended that the precedent method of time-analysis be used.

   2.6 The program control scheduling group shall be responsible for ensuring that the major contract milestones, interfaces, or events specified by the program manager shall be included in the PMN.

2.7 The PMN shall be used to determine if the original program planning conforms to the established contractual milestones, interfaces, and events, after which it shall be used to evaluate and control the program. The PMN is not to be used as a substitute for detailed and intermediate schedules, but to incorporate them into a format that will provide the program manager, or the customer when required, with a clear and concise overview of the current program status.

2.8 As a minimum, the PMN will provide:

2.8.1 Identification of the major tasked work required to accomplish program objectives in accordance with the CWBS.

2.8.2 Early and late start, early and late finish, and the total float of each activity in the network.

2.8.3 The critical path through the network.

2.8.4 Interface requirements are included as part of the formal network review with the responsible/ performing organizations.

2.8.5 A review by Program Control of all interfaces created by the organization or imposed on it from another area.

2.8.6 Milestones and summary events on networks that must be in accordance with the program master and intermediate schedules.

2.8.7 Integration and control of scheduling to produce a coordinated plan of accomplishment of program objectives.

2.8.8 A base for creating reports that indicate current status and forecasts against planned status which shows the total program impact.

2.8.9 Identification of future problem areas for preventative action.

2.8.10 Development of simulation techniques for evaluating and forecasting alternative plans prior to their implementation.

2.8.11 Network simulations to indicate the impact of Contract Change Notices, Engineering Change Proposals, and formal reprogramming action items.

2.8.12 Integration of subcontractor data into the program management system networks to ensure total program coverage.

3. Procedure

3.1 Program Control determines any requirements for data processing services to support program networks.

3.2 Networks are constructed to identify CWBS major contract end items of hardware and software that are to be delivered to the customer or that otherwise constitute an AESD commitment.

3.2.1 Networks shall be updated periodically, as specified by the program manager, to reflect program progress and changes to program plans.

3.3 The network critical path is re-evaluated each time program progress or changes to program plans are incorporated into the program network.

3.4 Interface requirements are included as a part of the formal network review with the responsible/performing organizations. Program Control performs a review of all interfaces created by that organization or imposed on it from another area.

3.5 Milestones and summary events on networks must be in accordance with the program master and intermediate schedules.

3.6 Networks shall be updated periodically as specified by the program manager.

3.7 Networks shall be produced by automated systems such as ARTEMIS and shall use the precedent or I-J technique to provide time-analysis and network/Gantt chart graphics.

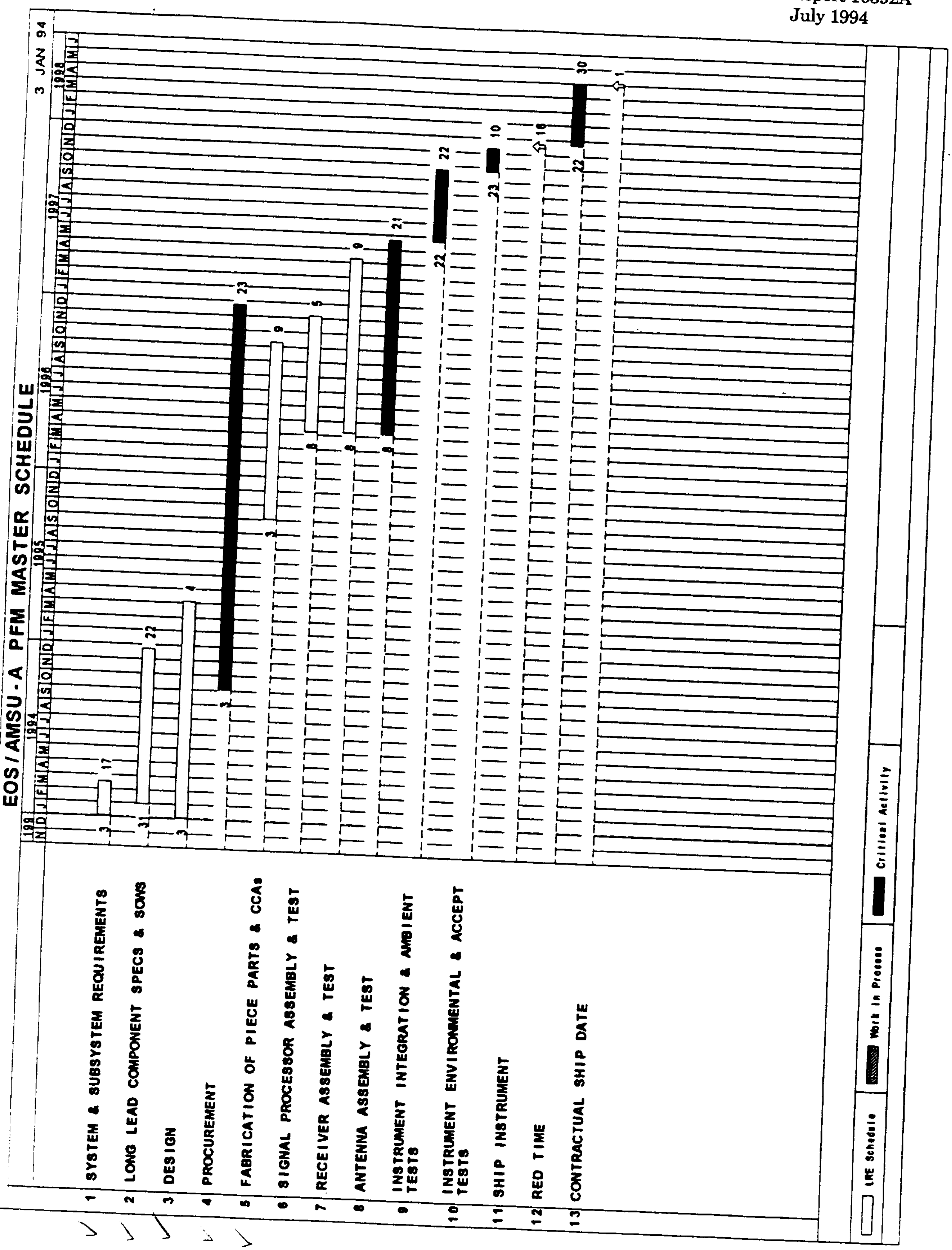
3.8 The time-analysis shall provide the following data derived for each network activity:

- Early start date
- Early finish date
- Late start date
- Late finish date
- Total float

3.9 An activity in a network can consist of a partial or total amount of work contained in a work package, cost account, or any other measure of authorized work. An activity, however, must be traceable to that work contained in authorized work packages. Network activities are constructed for the convenience and clarity of analysis and, therefore, often consist of several functional cost accounts that perform a common operation.

Appendix B

Program Master Schedule

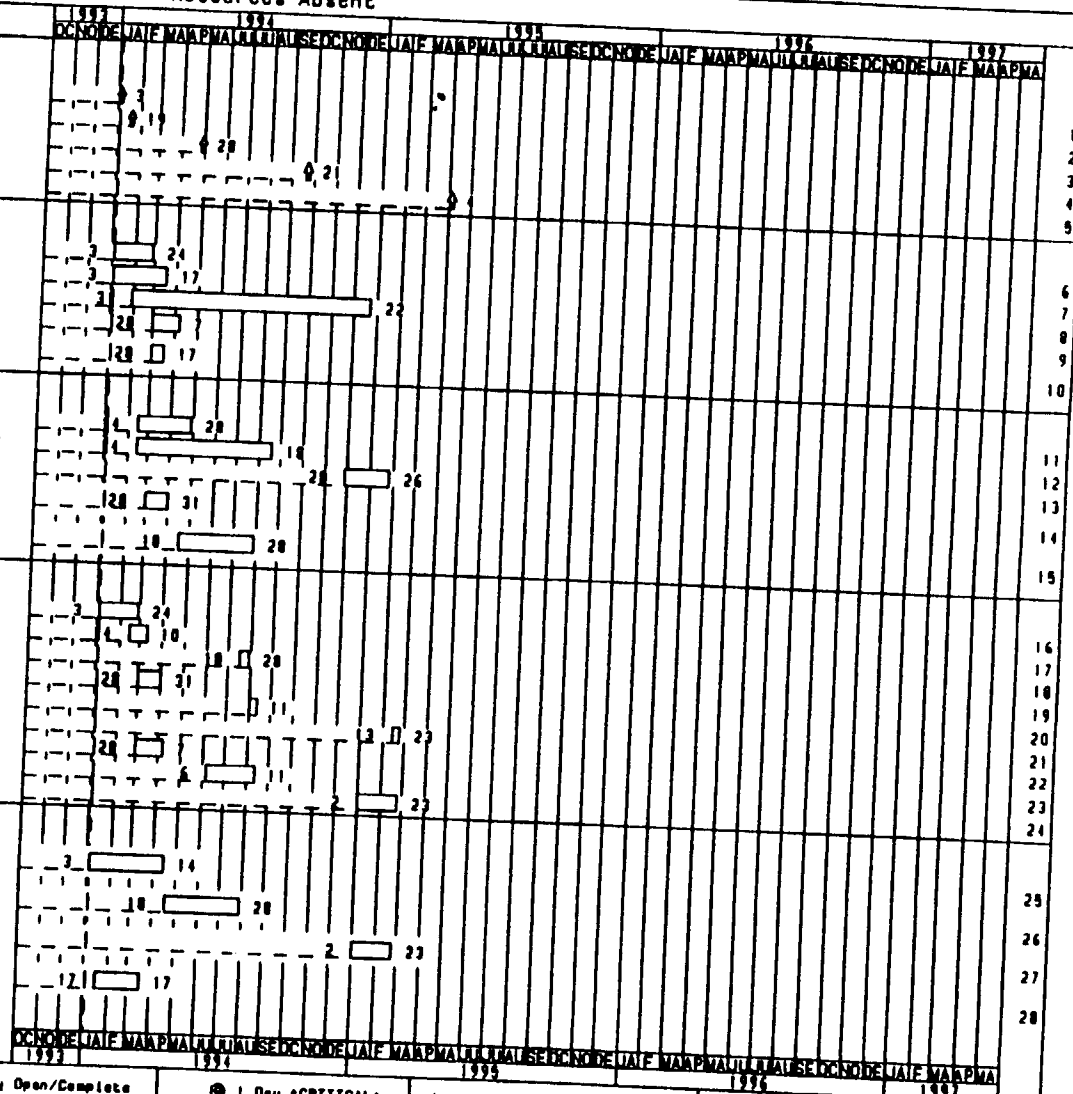

EOS/AMSU-A PFM MASTER SCHEDULE
3 JAN 94
1 SYSTEM & SUBSYSTEM REQUIREMENTS
2 LONG LEAD COMPONENT SPECS & SOWS
3 DESIGN
4 PROCUREMENT
5 FABRICATION OF PIECE PARTS & CCAs
6 SIGNAL PROCESSOR ASSEMBLY & TEST
7 RECEIVER ASSEMBLY & TEST
8 ANTENNA ASSEMBLY & TEST
9 INSTRUMENT INTEGRATION & AMBIENT TESTS
10 INSTRUMENT ENVIRONMENTAL & ACCEPT TESTS
11 SHIP INSTRUMENT
12 RED TIME
13 CONTRACTUAL SHIP DATE
LRE Schedule
Work in Process
Critical Activity

Appendix C

Design Phase Schedule

Subassembly: EOS/AMSU-A DESIGN PHASE   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS/AMSU-A DESIGN PHASE
1	D05	START IMPLEMENTATION PHASE
2	D10	PROJECT INITIATION MEETING
3	D20	DCR - DESIGN CONCEPT REVIEW
4	D30	PDR - PRELIMINARY DESIGN REVIEW
5	D40	CDR - CRITICAL DESIGN REVIEW
		EOS SYSTEMS ENGINEERING REQUIREMENTS REVIEW & FLOWDOWN
6	D50	REVIEW & DOCUMENT SYSTEM REQTS
7	D100	REVIEW & DOCUMENT SUBSYSTEM REQTS
8	D150	REVIEW & UPDATE COMPONENT SPECS & SOWS
9	D200	UPDATE & MAINTAIN WEIGHT & POWER BUDGETS
10	D250	PREP PRELIM PREVIOUSLY DESIGNED HDWE REPORT-CDRL 201
		EOS SYSTEMS ENGINEERING SYSTEM DEFINITION
11	D300	REVIEW & UPDATE SYSTEM ARCHITECTURE
12	D450	PRELIMINARY INTERNAL REVIEW OF SUBSYSTEM DESIGNS
13	D480	CRITICAL INTERNAL REVIEW OF SUBSYSTEM DESIGNS
14	D500	DEVELOP RADIOMETRIC MATH MODEL (CDRL 101) - SCOPE
15	D550	DEVELOP RADIOMETRIC MATH MODEL (CDRL 101) - PRELIM
		EOS SYSTEMS ENGINEERING SPACECRAFT INTERFACE DESIGN
16	D600	RECOMMENDED CHANGES TO THE IDD & UIID
17	D650	PREP COMMAND LIST DESC DOC (CDRL 303) - PRELIM
18	D700	PREP COMMAND LIST DESC DOC (CDRL 303) - FINAL
19	D750	PREP ENG TELEMETRY DESC DOC (CDRL 305) - PRELIM
20	D800	PREP ENG TELEMETRY DESC DOC (CDRL 305) - FINAL
21	D820	PREP ENG TELEMETRY DESC DOC (CDRL 305) - UPDATE
22	D850	UPDATE INTERFACE DESC DOC (CDRL 519) - INITIAL
23	D900	UPDATE INTERFACE DESC DOC (CDRL 519) - PRELIM
24	D920	UPDATE INTERFACE DESC DOC (CDRL 519) - FINAL
		EOS SYSTEMS ENGINEERING SYSTEM PLANS & PROCEDURES
25	D950	PREP PERF VERIF PLAN (CDRL 022) & SPEC (CDRL 308) - PRELIM
26	D1000	PREP PERF VERIF PLAN (CDRL 022) & SPEC (CDRL 308) - UPDATE
27	D1020	PREP PERF VERIFICATION PLAN (CDRL 022) & SPEC (CDRL 308) - FINAL
28	D1050	PREP CALIBRATION MANAGEMENT PLAN (CDRL 018) - PRELIM



LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 10-JAN-94 10.58 am

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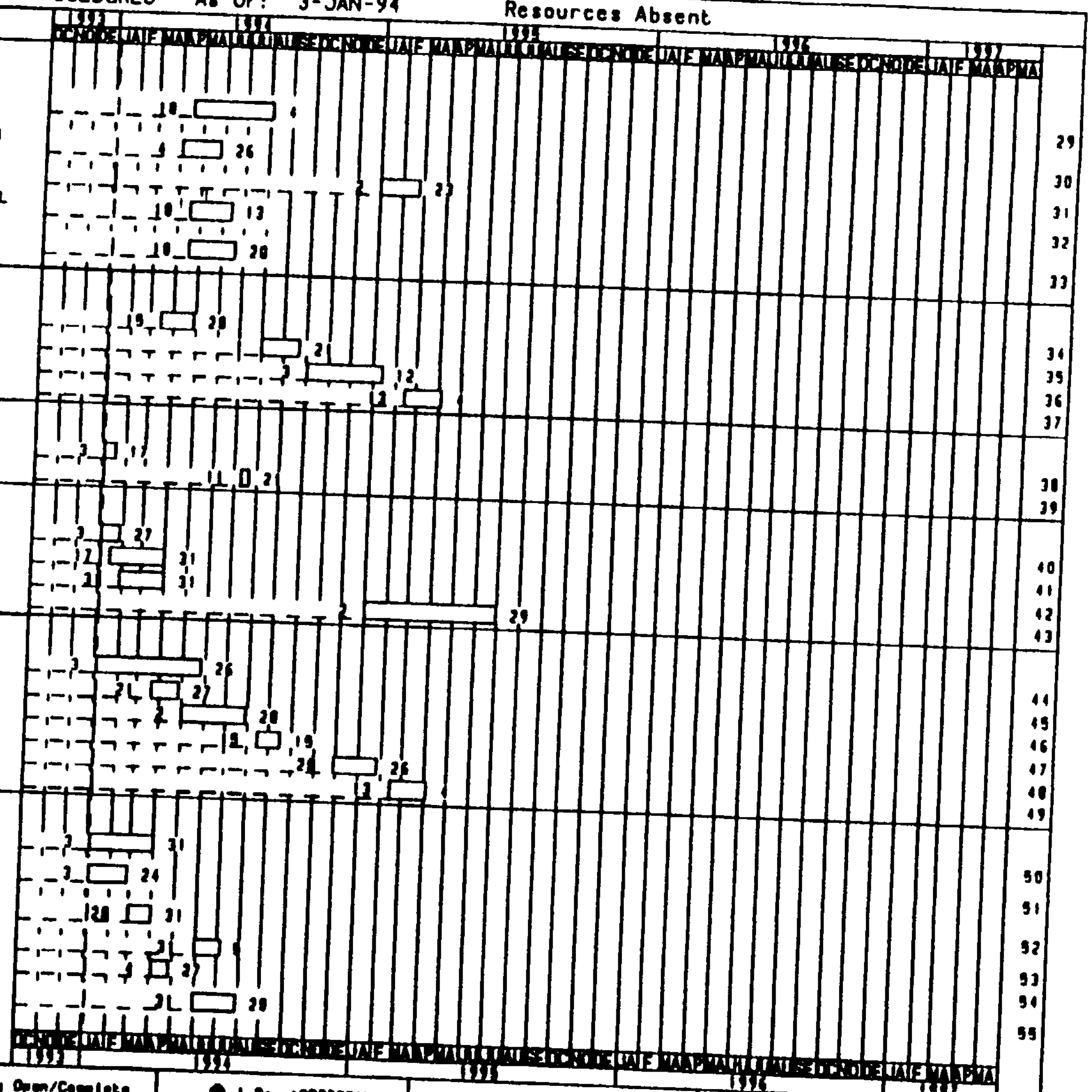
Subassembly: EOS SYSTEMS ENGINEERING SYSTEM PLANS & PROCEDURES   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS SYSTEMS ENGINEERING SYSTEM PLANS & PROCEDURES
29	D1100	PREP CALIBRATION MANAGEMENT PLAN (CDRL 018) - FINAL
30	D1150	PREP PRELIM OPERATIONAL IN-FLIGHT CHECKOUT PLAN (CDRL 029)
31	D1180	PREP FINAL OPERATIONAL IN-FLIGHT CHECK-OUT PLAN
32	D1200	PREP OPERATIONAL IN-FLIGHT CALIB PROCEDURE (CDRL 404) - PRELIM
33	D1250	PREP GEN. OPERATIONAL COMMAND PROCEDURE (CDRL 405) - PRELIM
		EOS SYSTEMS ENGINEERING MEETING SUPPORT
34	D1300	PREP FOR & SUPPORT DCR
35	D1350	PREP FOR & SUPPORT PDR
36	D1360	PREP FOR & SUPPORT CPR I
37	D1380	PREP FOR & SUPPORT CDR
		EOS SPARES DEFINITION
38	D1400	PREP SPARES PROGRAM PLAN - PRELIM
39	D1450	PREP SPARES PROGRAM PLAN - FINAL
		EOS RADIATION ANALYSIS
40	D1500	PRELIM DATA BASE SEARCHES
41	D1550	PRELIM SHIELDING ANALYSIS/DESIGN CRITERIA MEMO
42	D1600	PRELIM PARTS ASSESSMENT
43	D1650	SUPPLIERS COMPONENT REVIEW
		EOS EMI/EMC DESIGN ANALYSIS SUPPORT
44	D1700	EMI/EMC DESIGN ANALYSIS & SUPPORT
45	D1750	PREP FOR & SUPPORT DCR
46	D1800	PRELIM EMI/EMC TEST PLAN/PROCEDURE
47	D1850	PREP FOR & SUPPORT PDR
48	D1900	FINAL EMI/EMC TEST PLAN/PROCEDURE
49	D1950	PREP FOR & SUPPORT CDR
		EOS CONTAMINATION CONTROL
50	D2000	ESTABLISH INSTRUMENT CONTAMINATION ALLOWANCES
51	D2150	ESTABLISH CONTAMINATION REQ'TS & CONCEPTS FOR BAKEOUT, T/V, FAB/ASSY/TEST & FACILITIES
52	D2600	ESTABLISH CLEANLINESS VERIFICATION REQ'TS & CONCEPTS
53	D2650	CLEANLINESS VERIFICATION - FOR PDR
54	D2750	PREP FOR & SUPPORT DCR
55	D2760	REVIEW & UPDATE CONTAMINATION ALLOWANCES, REQUIREMENTS & CONCEPTS FOR PDR



LRE Schedule | Orig Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

METED ARTDMB

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 10-JAN-94 10.50 am

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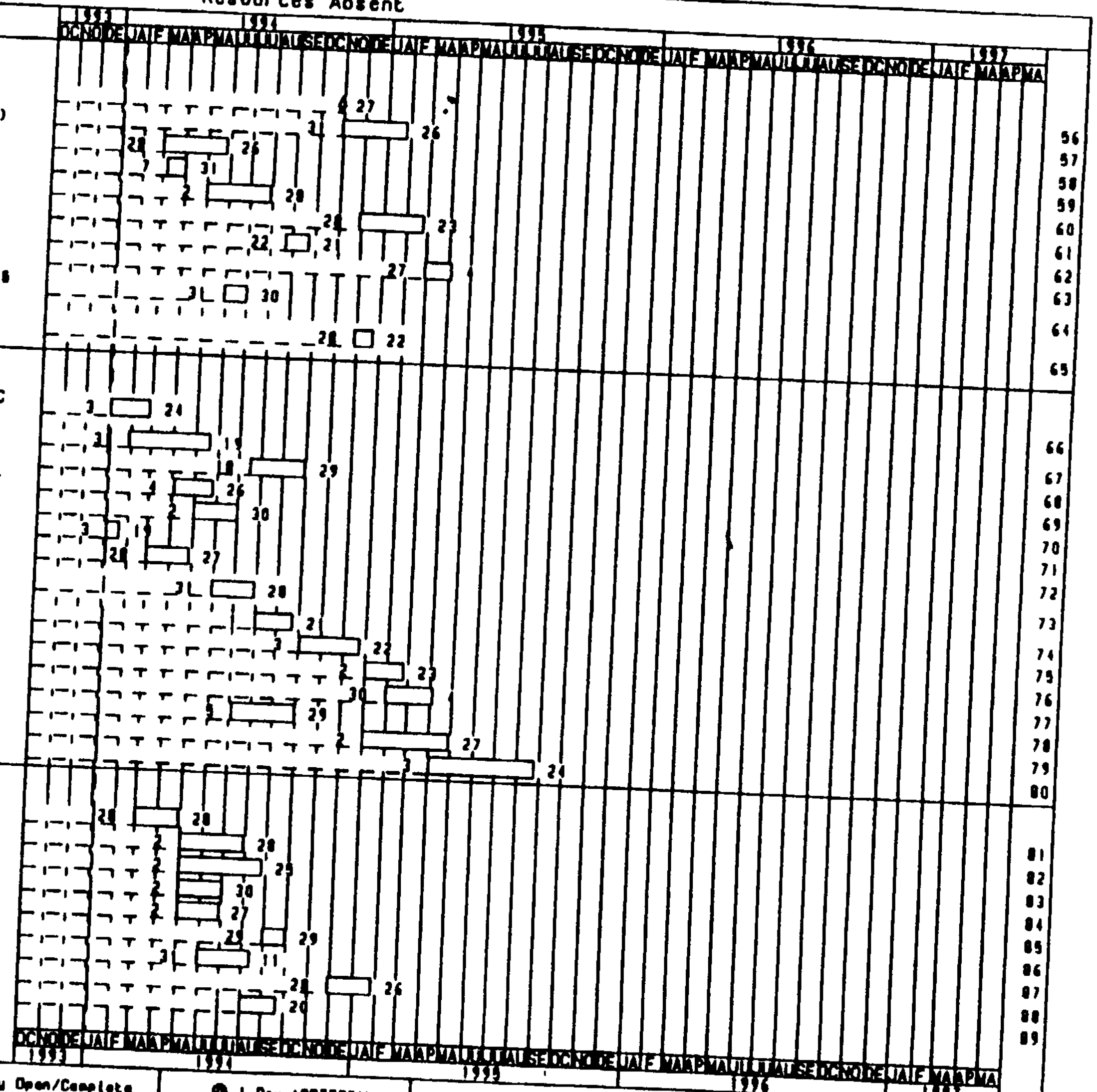
Subassembly: EOS CONTAMINATION CONTROL   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS CONTAMINATION CONTROL
56	D2780	NASA CROSS CONTAMINATION INPUTS (SCHEDULE TBD)
57	D2800	INSTRUMENT CROSS CONTAM ANALYSIS (SCHEDULE TBD)
58	D2830	SUPPORT SUBCONTRACTOR SPEC REVIEWS & UPDATES
59	D2850	PREPARE & ISSUE CONTAM CONTROL PLAN - OUTLINE
60	D2900	PREPARE & ISSUE CONTAM CONTROL PLAN - PRELIM
61	D2950	PREPARE & ISSUE CONTAM CONTROL PLAN - FINAL
62	D3000	PREP FOR & SUPPORT PDR
63	D3050	PREP FOR & SUPPORT CDR
64	D3060	PRELIM REVIEW & UPDATE OF MATERIALS, PROCESSES & LUBRICANT LIST - CDRL 506
65	D3065	FINAL REVIEW & UPDATE OF MATERIALS, PROCESSES & LUBRICANT LIST - CDRL 506
		EOS RECEIVER SUBSYSTEM
66	D3100	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN TO REC SUBSYS
67	D3200	UPDATE COMPONENT SOW & SPEC
68	D3250	REVIEW SUPPLIER'S INPUTS
69	D3300	INVESTIGATE LO NOISE IMPACT ON SYSTEM NE DELTA T
70	D3350	INVESTIGATE MIXER/IF AMP NOISE STABILITY
71	D3400	PREP FOR & SUPPORT PROJECT INITIATION MEETING
72	D3450	PREP FOR & SUPPORT DCR
73	D3500	PREP FOR & SUPPORT REC SUBSYSTEM INTERNAL DESIGN REVIEW
74	D3550	PREP FOR & SUPPORT PDR
75	D3600	RECEIVER TEST PLAN, PROCEDURE & VERIFICATION
76	D3700	FABRICATE TEST FIXTURES & ELECTRONIC BOXES
77	D3750	PREP FOR & SUPPORT CDR
78	D3780	RECEIVER COMPONENT VENDOR PRE-AWARD AUDITS
79	D3800	DESIGN REVIEW OF KEY RECEIVER COMPONENTS
80	D3810	REVIEW OF SUPPLIER COMPONENT TEST PROCEDURES
		EOS PLO DEVELOPMENT
81	D22500	PLO SPECIFICATION
82	D22700	PLO DESIGN CONFIRMATION/ANALYSIS
83	D22800	PLO DESIGN ASSURANCE/RELIABILITY ANALYSIS
84	D22850	PLO QUALITY ASSURANCE PLAN
85	D22900	PRELIM CRYSTAL OSC & GDO SPECS UPDATE
86	D22950	FINAL CRYSTAL OSC & GDO SPECS RELEASE
87	D23000	PLO PRELIM DETAILED DRAWINGS UPDATE
88	D23050	PLO FINAL DETAILED DRAWINGS RELEASE
89	D23100	PLO PRELIMINARY TEST PLANS



LRE Schedule
Orig. Sched. Accompl'd
Critical Activity
I Day Open/Complete
I Day *CRITICAL*
Analyzed Dates
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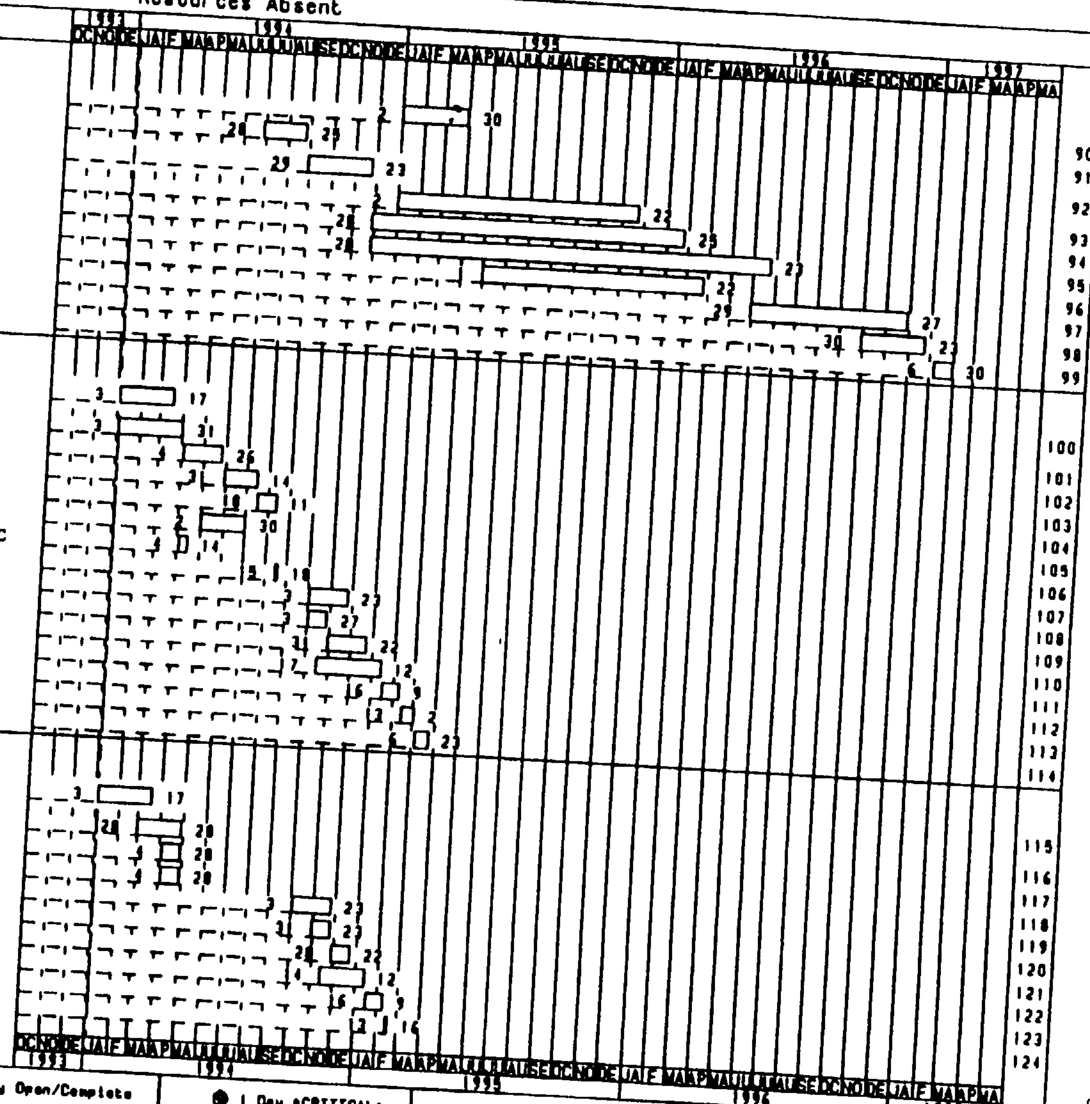
Subassembly: EOS PLO DEVELOPMENT   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS PLO DEVELOPMENT
90	D23200	PLO FINAL TEST PLANS & TEST PROCEDURES
91	D23300	PLO QUOTE SOLICITATION
92	D23400	PLO QUOTE ANALYSIS & PO PLACEMENT- LONG LEAD COMPONENTS
93	D23450	PROCURE PLO MISCELLANEOUS LONG LEAD PARTS
94	D23700	PROCURE PLO CRYSTAL OSC
95	D23750	PROCURE PLO CDO
96	D23800	FORMALIZE PLO MANUFACTURING PLANNING
97	D23900	PLO FABRICATION & ASSEMBLY
98	D24000	PLO FUNCTIONAL & ENVIRONMENTAL TESTS
99	D24100	PLO TEST REPORT
		EOS SIGNAL PROCESSOR ASSY - DIGITAL PROCESSING
100	D3930	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN TO SIGNAL PROC- DIGITAL PROC
101	D3950	DESIGN & ANALYSIS - DIGITAL PROC
102	D4000	PROCURE BREADBOARD PARTS - DIGITAL PROC
103	D4020	ASSEMBLE BREADBOARD - DIGITAL PROC
104	D4030	TEST BREADBOARD - DIGITAL PROC
105	D4050	STRESS ANALYSIS (CDRL 109) - DIGITAL PROC
106	D4100	LOGIC DIAGRAMS (CDRL 302)- PRELIM - DIGITAL PROC
107	D4150	LOGIC DIAGRAMS (CDRL 302)- FINAL - DIGITAL PROC
108	D4200	CCA TEST INSTRUCTIONS - DIGITAL PROC
109	D4250	SCHEMATICS - DIGITAL PROC
110	D4300	CCA DRAFTING & ARTWORK - DIGITAL PROC
111	D4350	DOCUMENTATION CHECK - DIGITAL PROC
112	D4400	PROCURE PARTS FOR CCA PROTOTYPING - DIGITAL PROC
113	D4420	ASSEMBLE CCA PROTOTYPES - DIGITAL PROC
114	D4430	TEST CCA PROTOTYPES - DIGITAL PROC
		EOS SIGNAL PROCESSOR ASSY - ANALOG PROCESSING
115	D4440	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN - ANALOG PROC
116	D4450	DESIGN - ANALOG PROC
117	D4500	SIMULATION & ANALYSIS - ANALOG PROC
118	D4550	PARTS STRESS ANALYSIS (CDRL 302) - ANALOG PROC
119	D4600	CCA TEST INSTRUCTIONS - ANALOG PROC
120	D4650	SCHEMATICS - ANALOG PROC
121	D4700	CCA LAYOUT & ARTWORK - ANALOG PROC
122	D4750	DOCUMENTATION CHECK - ANALOG PROC
123	D4800	PROCURE PARTS FOR CCA PROTOTYPING - ANALOG PROC
124	D4820	ASSEMBLE CCA PROTOTYPES - ANALOG PROC



LRE Schedule
Orig. Sched. Accompl'd
Critical Activity
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1 Day *CRITICAL*
Analyzed Dates
EOS
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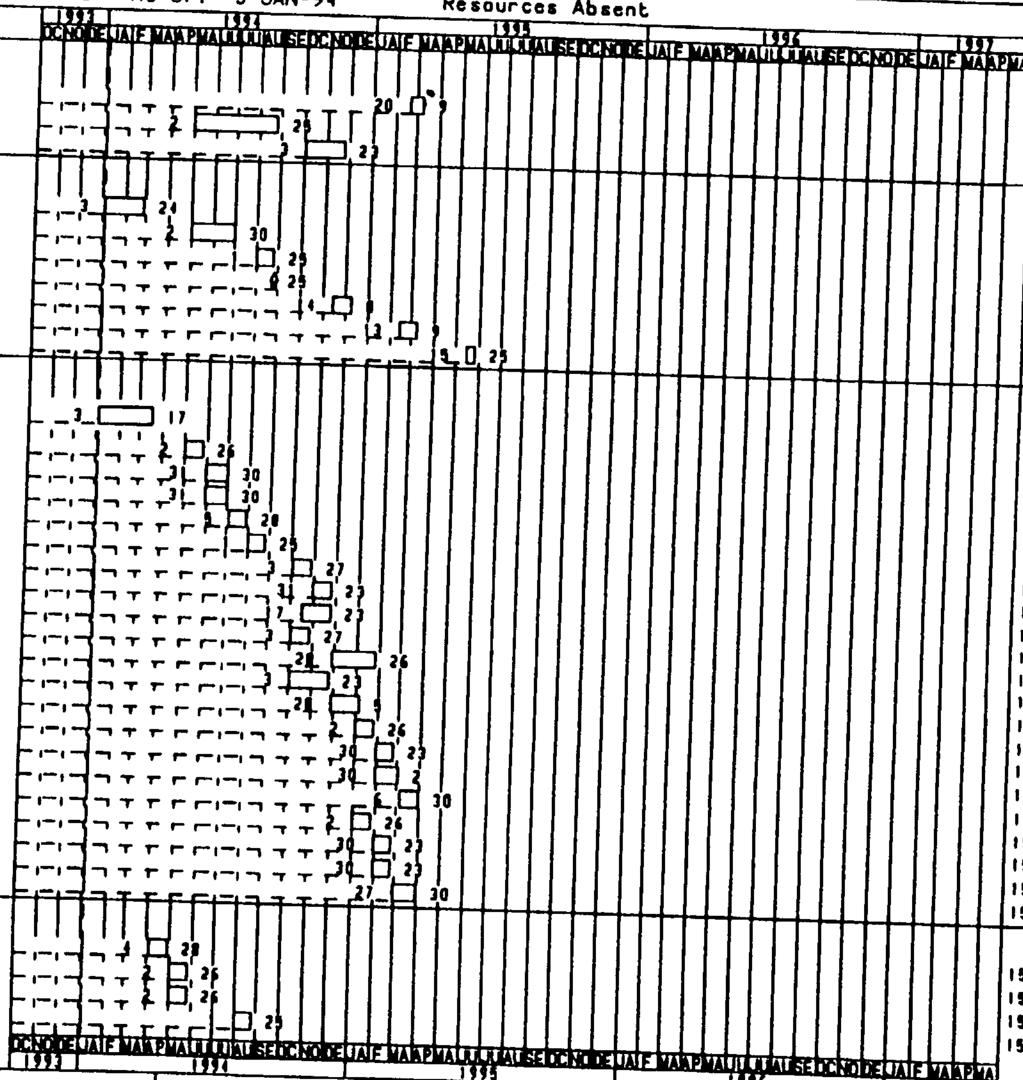
Subassembly:EOS SIGNAL PROCESSOR ASSY - ANALOG PROCESSING As Of: 3-JAN-94 Resources Absent

	Activity Code	Activity Description
		EOS SIGNAL PROCESSOR ASSY - ANALOG PROCESSING
125	D4840	TEST CCA PROTOTYPES - ANALOG PROC
126	D4845	DETECTOR SELECTION & EVALUATIONS
127	D4855	DETECTOR SPEC REVISIONS
		EOS POWER SUBSYSTEM - DC/DC CONVERTER
128	D4860	DC/DC CONVERTER PROPOSAL EVALUATION
129	D4910	DC/DC CONVERTER SUPPLIER AUDITS
130	D4960	DC/DC CONVERTER FINAL SUPPLIER SELECTION
131	D5010	RELEASE DC/DC CONVERTER SPECS AE 24693, 24958
132	D5020	DC/DC CONV SUPPLIER POST AWARD REVIEW #1
133	D5030	DC/DC CONV SUPPLIER POST AWARD REVIEW #2
134	D5040	DC/DC CONV SUPPLIER POST AWARD REVIEW #3
		EOS POWER SUBSYSTEM - CONTROL & DISTRIBUTION
135	D5060	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN - PWR CONTROL
136	D5110	INTERCONNECTION DESIGN - A1
137	D5160	INTERCONNECTION DESIGN - A2
138	D5210	POWER CONTROL PWB DESIGN
139	D5260	HARNESS DESIGN - A1
140	D5310	HARNESS DESIGN - A2
141	D5360	PWB SCHEMATIC - PWR CONTROL
142	D5410	PWB LAYOUT & ARTWORK - PWR CONTROL
143	D5460	PWB CHECK - PWR CONTROL
144	D5510	CCA TEST INSTRUCTIONS - PWR CONTROL
145	D5560	CCA PROTOTYPING - PWR CONTROL
146	D5610	A1 BACKPLANE WIRE LIST - ENG DESIGN
147	D5660	A2 BACKPLANE WIRE LIST - ENG DESIGN
148	D5710	HARNESS DRAFTING - A1
149	D5760	HARNESS CHECK - A1
150	D5810	HARNESS DRAFTING - A2
151	D5850	HARNESS CHECK - A2
152	D5880	A1 BACKPLANE WIRE LIST - DRAFTING
153	D5900	A1 BACKPLANE WIRE LIST - CHECK
154	D5950	A2 BACKPLANE WIRE LIST - DRAFTING
155	D6000	A2 BACKPLANE WIRE LIST - CHECK
		EOS INTEG ELECT DESIGN - TEST PLANS, PROCEDURES & FIXTURES
156	D6010	SIGNAL PROC TEST SET DESIGN
157	D6020	1553 I/F TEST CONTROLLER DEV FOR BREADBOARD TEST
158	D6040	SIGNAL PROC TEST SET ASSEMBLY
159	D6045	TEST PLANS



LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

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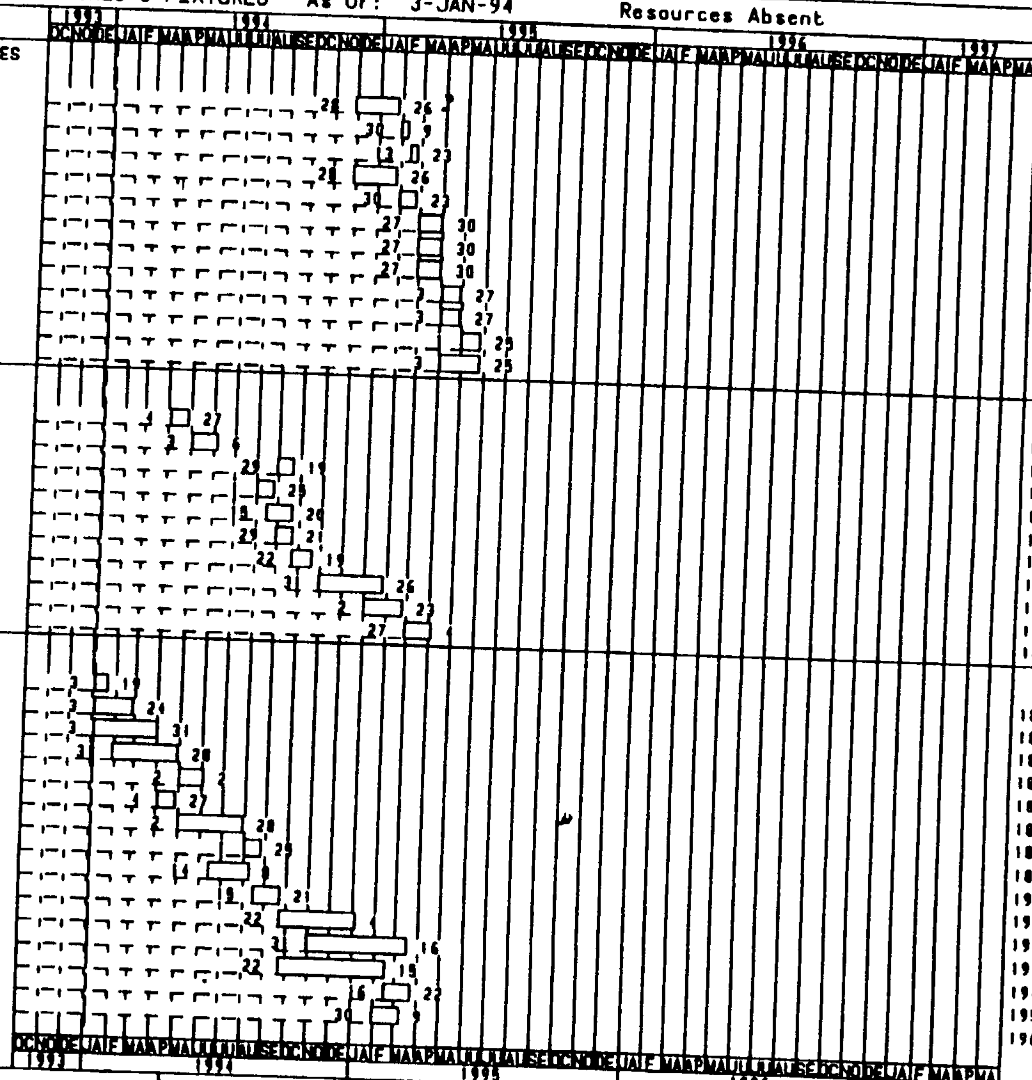
Subassembly:EOS INTEG ELECT DESIGN - TEST PLANS, PROCEDURES & FIXTURES As Of: 3-JAN-94 Resources Absent

	Activity Code	Activity Description
		EOS INTEG ELECT DESIGN - TEST PLANS, PROCEDURES & FIXTURES
160	D6050	DEVELOP SIG PROC TEST PROCEDURES
161	D6055	ANTENNA DRIVE TEST PROCEDURES
162	D6060	DETECTOR/PREAMP TEST PROCEDURES
163	D6070	1553 I/F TEST CONTROLLER DEV FOR CCA PROTOTYPES
164	D6080	ANALOG CCA TEST FIXTURES DESIGN
165	D6100	EXTENDER & I/O CARD DESIGN
166	D6120	MISC TEST FIXTURES DESIGN
167	D6140	PROCURE PARTS FOR ANALOG CCA FIXTURE FAB
168	D6160	ANALOG CCA TEST FIXTURE FAB
169	D6170	PROCURE PARTS FOR MISC TEST FIXTURE FAB
170	D6180	MISC TEST FIXTURES FAB
171	D6190	TEST FIXTURES FAB SUPPORT & CHECKOUT
		EOS ELECTRONICS INTEGRATED PRODUCT TEAM
172	D6200	PREP FOR & SUPPORT DCR
173	D6250	INTERNAL DESIGN REVIEWS - ELECT CPD
174	D6300	TEST PLAN REVIEWS - ELECT CPD
175	D6330	SPEC UPDATE - ELECT CPD
176	D6350	SPEC SIGNOFF - ELECT CPD
177	D6400	PREP FOR & SUPPORT PDR
178	D6430	INTERNAL DESIGN REVIEW - POST PDR - ELECT CPD
179	D6450	DRAWING SIGNOFF - ELECT CPD
180	D6500	TEST PROCEDURE SIGNOFF - ELECT CPD
181	D6550	PREP FOR & SUPPORT CDR
		EOS AI MECHANICAL DESIGN
182	D6600	PREP FOR & SUPPORT PROJECT INITIATION MEETING
183	D6650	REQUIREMENTS FLOWDOWN
184	D6700	BOTTOM MOUNT CAD MODEL - AI
185	D6750	BOTTOM MOUNT STRESSES - AI
186	D6800	PRELIM STRESS REPORT- CDRL 113 - AI
187	D6850	PREP FOR & SUPPORT DCR - AI
188	D6900	UPDATE 3D CAD MODEL - AI
189	D6950	BOTTOM MOUNT ICD UPDATE - AI
190	D7000	PRELIM NASTRAN MODEL- CDRL 102 - AI
191	D7050	PREP FOR & SUPPORT PDR - AI
192	D7100	REVISE CAD MODEL - AI
193	D7150	DETAIL DRAWING RELEASE - AI
194	D7200	FINAL STRESS ANALYSIS - AI
195	D7250	FINAL STRESS REPORT (CDRL 113) - AI
196	D7300	FINAL NASTRAN MODEL (CDRL 102) - AI



LRE Schedule
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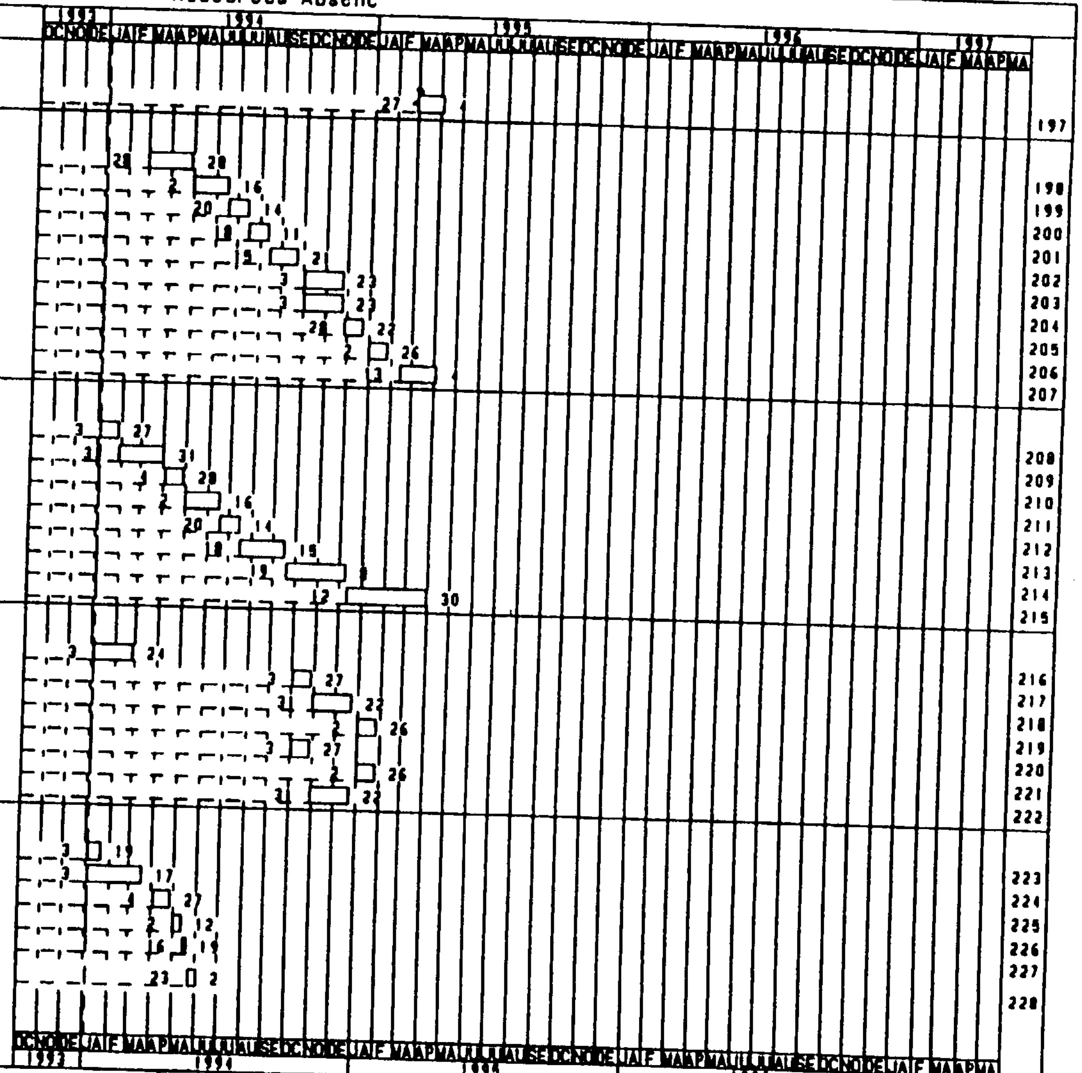
Subassembly: EOS A1 MECHANICAL DESIGN   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS A1 MECHANICAL DESIGN
197	D7350	PREP FOR & SUPPORT CDR - A1
		EOS A2 MECHANICAL DESIGN
198	D7400	UPDATE 3D CAD MODEL - A2
199	D7450	PRELIM STRESS ANALYSIS - A2
200	D7500	STRESS REPORT (CDRL 113) - A2
201	D7550	PRELIM NASTRAN MODEL (CDRL 102) - A2
202	D7600	PREP FOR & SUPPORT PDR - A2
203	D7650	DETAILED DRAWINGS - A2
204	D7700	FINAL STRESS ANALYSIS - A2
205	D7750	FINAL STRESS REPORT (CDRL 113) - A2
206	D7800	FINAL NASTRAN MODEL (CDRL 102) - A2
207	D7850	PREP FOR & SUPPORT CDR - A2
		EOS MECHANICAL/THERMAL INTEGRATED PRODUCT TEAM
208	D7900	CONCEPTUAL PACKAGE REVIEW - M/T IPT
209	D7950	ID DRAWINGS TO CHANGE - M/T IPT
210	D8000	ID SPECS TO BE CHANGED - M/T IPT
211	D8050	INTERNAL PACKAGING REVIEW - M/T IPT
212	D8100	ANSWER PACKAGE REVIEW ACTION ITEMS- M/T IPT
213	D8150	ID PROCEDURES TO BE CHANGED - M/T IPT
214	D8200	SPEC UPDATE SIGNOFF - M/T IPT
215	D8250	DRAWING SIGNOFF - M/T IPT
		EOS MECHANICAL COST REDUCTIONS
216	D8255	ALUMINUM RF SHELF STRESSES & THERMAL ANALYSIS
217	D8260	RF SHELF DRAWINGS
218	D8270	PREAMP DETECTOR ASSY RELOCATION
219	D8275	A1 MOTOR HOUSING
220	D8280	RELOCATE SCREWS
221	D8285	A2 SECONDARY REFLECTOR
222	D8290	COAX CLIP REDESIGN
		EOS A1 THERMAL ANALYSIS
223	D8300	PREP FOR & SUPPORT PROJECT INITIATION MEETING
224	D8320	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN
225	D8350	PREP FOR & SUPPORT DCR
226	D8400	MODIFY A1 SINDA MODEL
227	D8450	BUILD SIMPLE A1 TRASYS S/C MODEL
228	D8500	RUN A1 TRASYS MODEL FOR 12 & 32 DEGREE SUN ANGLES



LRE Schedule | Orig. Sched Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

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Subassembly: EOS A1 THERMAL ANALYSIS   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description	1993–1997 (day numbers on bars)	
		EOS A1 THERMAL ANALYSIS		
229	D8550	RUN A1 SINDA MODEL - PREDICT TEMPS FOR HOT & COLD CONDITIONS	6 16	229
230	D8600	A1 DESIGN ITERATIONS - RADIATOR & MLI LOCATIONS	20 30	230
231	D8610	PRE PDR A1 INTERNAL DESIGN REVIEW		231
232	D8650	PREPARE A1 REDUCED THERMAL MODEL FOR PDR	1 28	232
233	D8700	PREP & DELIVER A1 THERMAL MATH MODEL FOR PDR	18	233
234	D8750	PREP FOR & SUPPORT PDR	29 21	234
235	D8800	JUNCTION TEMP ANALYSIS OF THE 3 HIGHEST POWERED A1 CCAS	3 27	235
236	D8850	A1 DESIGN ITERATIONS - RADIATOR & MLI LOCATIONS	31 23	236
237	D8900	PREPARE A1 REDUCED THERMAL MODEL FOR CDR	28 22	237
238	D8950	PREPARE & DELIVER A1 THERMAL MATH MODEL (CDRL 103) FOR CDR	2 26	238
239	D9000	PRE CDR A1 INTERNAL DESIGN REVIEW	2 26	239
240	D9050	PREPARE A1 THERMAL INTERFACE CONTROL DRAWING	28 22	240
241	D9100	PREP FOR & SUPPORT CDR	27	241
		EOS A2 THERMAL ANALYSIS		
242	D9150	PREP FOR & SUPPORT PROJECT INITIATION MEETING	3 19	242
243	D9200	PREP FOR & SUPPORT DCR	4 27	243
244	D9250	MODIFY A2 SINDA MODEL	2	244
245	D9300	BUILD SIMPLE A2 TRASYS S/C MODEL	9 12	245
246	D9350	RUN A2 TRASYS MODEL FOR 12 & 32 DEGREE SUN ANGLES	16 19	246
247	D9400	RUN A2 SINDA MODEL - PREDICT TEMPS FOR HOT & COLD SURVIVAL	3 9	247
248	D9450	A2 DESIGN ITERATIONS - RADIATOR & MLI LOCATIONS	3 23	248
249	D9460	PRE PDR A2 INTERNAL DESIGN REVIEW	27 30	249
250	D9500	PREPARE A2 REDUCED THERMAL MODEL FOR PDR	11 28	250
251	D9550	PREPARE & DELIVER A2 THERMAL MATH MODEL (CDRL 103) FOR PDR	18	251
252	D9600	PREP FOR & SUPPORT PDR	29 21	252
253	D9650	JUNCTION TEMP ANALYSIS OF THE 3 HIGHEST POWERED A2 CCAS	3 27	253
254	D9700	A2 DESIGN ITERATIONS - RADIATOR & MLI LOCATIONS	31 23	254
255	D9750	PREPARE A2 REDUCED THERMAL MODEL FOR CDR	28 22	255
256	D9800	PREPARE & DELIVER A2 THERMAL MATH MODEL (CDRL 103) FOR CDR	2 26	256
257	D9850	PRE CDR A2 INTERNAL DESIGN REVIEW	2 26	257
258	D9900	PREPARE A2 THERMAL INTERFACE CONTROL DRAWING	30 23	258
259	D9950	PREP FOR & SUPPORT CDR	27	259

LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

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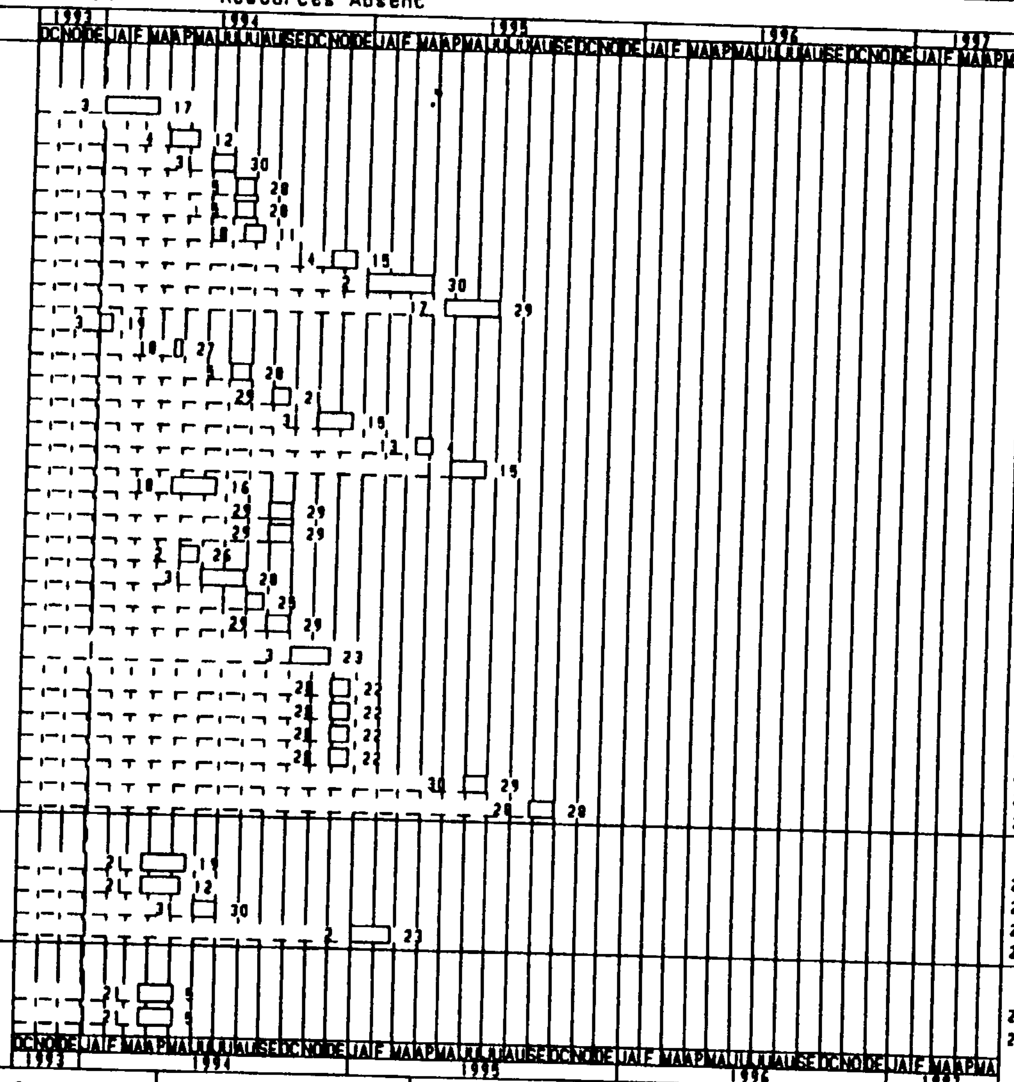
Subassembly: EOS ANTENNA SUBSYSTEM DESIGN As Of: 3-JAN-94 Resources Absent

	Activity Code	Activity Description
		EOS ANTENNA SUBSYSTEM DESIGN
260	D10000	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN TO ANTENNA SUBSYSTEM
261	D10050	PRELIM REVIEW OF COMPONENT SPECS
262	D10100	CONFIRM COMPONENT PERFORMANCE
263	D10150	CONFIRM SUBSYSTEM PERFORMANCE
264	D10200	REVIEW DRAWINGS
265	D10250	EMISSIVITY ACCURACY STUDY
266	D10300	UPDATE TEST PROCEDURES- ANTENNA SUBSYSTEM
267	D10350	COMPLETE TEST FIXTURE DESIGN
268	D10400	COMPLETE TEST FIXTURE FAB
269	D10450	PREP FOR & SUPPORT PROJECT INITIATION MEETING
270	D10500	PREP FOR & SUPPORT DCR
271	D10550	PREP FOR & SUPPORT INTERNAL DESIGN REVIEW
272	D10600	PREP FOR & SUPPORT PDR
273	D10650	PREP FOR & SUPPORT CAL PEER REVIEW #1
274	D10700	PREP FOR & SUPPORT CDR
275	D10750	PREP FOR & SUPPORT CAL PEER REVIEW #2
276	D10800	SPEC UPDATE & REVIEW (MOTOR, MUX, DIPLEXER)
277	D10810	PRE-AWARD AUDIT AT VENDOR - MOTOR BEARINGS
278	D10820	PRE-AWARD AUDIT AT VENDOR - DRIVE MOTOR
279	D10822	RELEASE BERYLLIUM REFLECTOR DWG 1331225 & SPEC
280	D10826	A2 REFLECTOR OUT FOR SUPPLIER QUOTES
281	D10830	PRE-AWARD AUDIT AT VENDOR - REFLECTOR
282	D10840	PRE-AWARD AUDIT AT VENDOR - FEEDHORN/MUX
283	D10850	INITIATE PROCUREMENT (MOTOR, MUX, DIPLEXER & REFLECTOR)
284	D10860	POST-AWARD REVIEW AT VENDOR - MOTOR BEARINGS
285	D10870	POST-AWARD REVIEW AT VENDOR - DRIVE MOTOR
286	D10880	POST-AWARD REVIEW AT VENDOR - REFLECTOR
287	D10890	POST-AWARD REVIEW AT VENDOR - FEEDHORN/MUX
288	D10950	VENDOR INTERFACE STATUS REVIEWS
289	D10960	VENDOR INTERFACE STATUS REVIEWS - FINAL
		EOS DRIVE MOTOR MECHANICAL DESIGN
290	D11000	SPEC REVIEW & UPDATE - MECHANICAL
291	D11050	A1 MOTOR HOUSING MOD
292	D11200	N2 PURGE REVIEW
293	D11250	DRAWING UPDATE- A1 HOUSING MOD
		EOS DRIVE MOTOR ELECTRICAL DESIGN
294	D11300	MOTOR SPEC REVIEW & UPDATE - ELECTRICAL
295	D11350	RESOLVER SPEC REVIEW & UPDATE



LRE Schedule | Orig Sched Accompl'd | Critical Activity | ♦ ♦ 1 Day Open/Complete | ● 1 Day *CRITICAL* | Analyzed Dates | EOS

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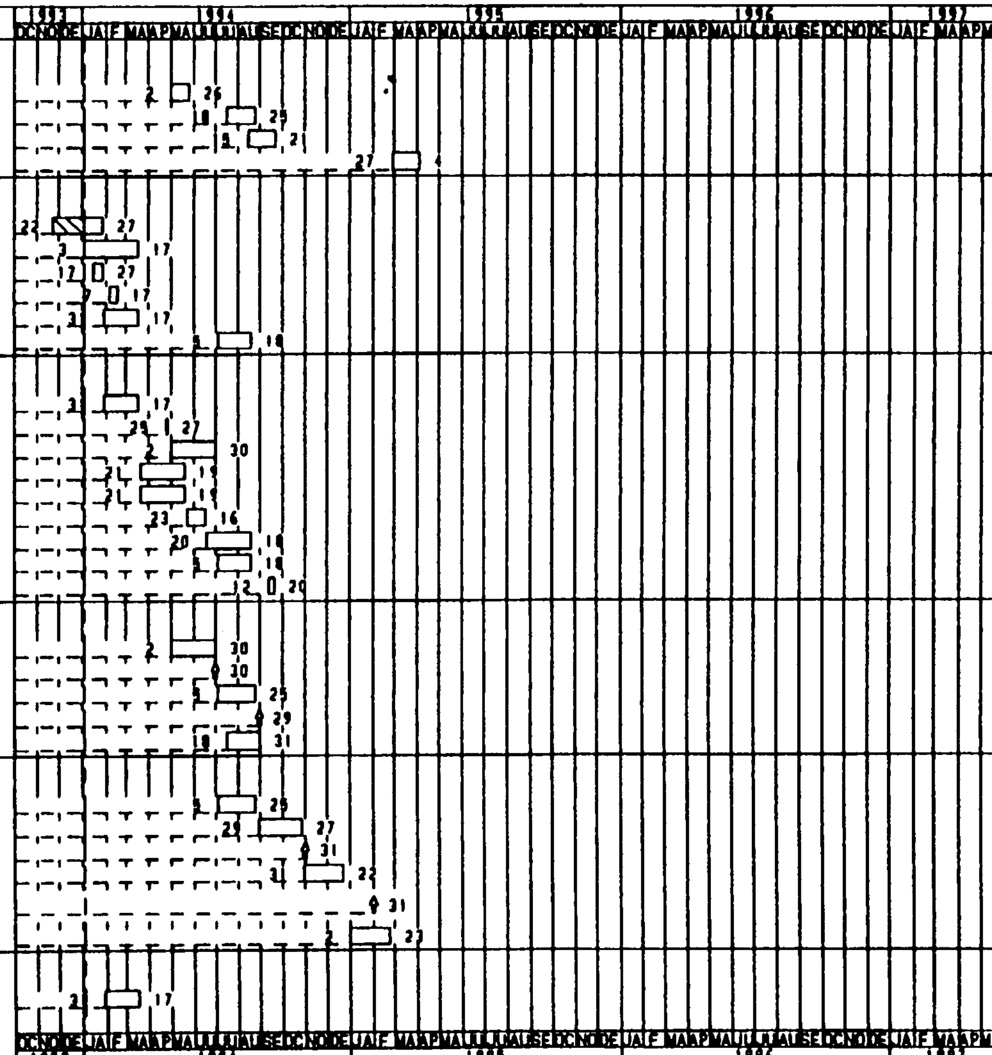
Subassembly: EOS DRIVE MOTOR ELECTRICAL DESIGN As Of: 3-JAN-94 Resources Absent

	Activity Code	Activity Description	
		EOS DRIVE MOTOR ELECTRICAL DESIGN	
296	D11400	HOUSING MOD DESIGN- ELECTRICAL	296
297	D11450	TEST PROCEDURE UPDATE- DRIVE MOTOR	297
298	D11500	PREP FOR & SUPPORT PDR	298
299	D11550	PREP FOR & SUPPORT CDR	299
		EOS SOFTWARE PLANNING DOCUMENTS & REQUIREMENTS	
300	D13600	SOFTWARE MANAGEMENT PLAN (CDRL 8)	300
301	D13620	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN	301
302	D13650	SOFTWARE STANDARDS & PROCEDURES PLAN (CDRL 402)	302
303	D13700	ACQUISITION ACTIVITIES PLAN (CDRL 508)	303
304	D13750	PRELIM SOFTWARE ASSURANCE PLAN	304
305	D13800	FINAL SOFTWARE ASSURANCE PLAN	305
		EOS FIRMWARE DOCUMENTATION	
306	D12800	FINAL FIRMWARE CONCEPT DOCUMENT (CDRL 306-1)	306
307	D12850	PREP FOR & SUPPORT DCR	307
308	D12900	FINAL FIRMWARE TEST PLAN (CDRL 33)	308
309	D12950	PRELIM INTERFACE REQUIREMENTS DOC (CDRL 306-3)	309
310	D13000	PRELIM FIRMWARE REQUIREMENTS SPEC (CDRL 306-3)	310
311	D13050	PRELIM INTERFACE DESIGN DOC (CDRL 306-6)	311
312	D13100	PRELIM DESIGN DOCUMENT (CDRL 306-4) (FINAL)	312
313	D13150	PRELIM FIRMWARE TEST PROCEDURES (CDRL 415)	313
314	D13200	PREP FOF & SUPPORT PDR	314
		EOS COMMAND & DATA HANDLING FIRMWARE	
315	D13250	DESIGN COMMAND & DATA HANDLING FIRMWARE	315
316	D13300	1ST INTERNAL COMMAND & DATA HANDLING REVIEW	316
317	D13350	CODE COMMAND & DATA HANDLING FIRMWARE	317
318	D13400	FINAL INTERNAL COMMAND & DATA HANDLING REVIEW	318
319	D13450	CHECKOUT COMMAND & DATA HANDLING FIRMWARE	319
		EOS MODIFIED AMSU-A FIRMWARE	
320	D13500	DESIGN 1553 COMMAND MOD FIRMWARE	320
321	D13510	CODE 1553 COMMAND MOD FIRMWARE	321
322	D13520	INTERNAL REVIEW OF 1553 COMMAND MOD CODE	322
323	D13540	CHECKOUT 1553 COMMAND MOD FIRMWARE	323
324	D13560	FINAL INTERNAL REVIEW OF 1553 COMMAND MOD FIRMWARE	324
325	D13580	INTEGRATE COMMAND MOD WITH C & DH FIRMWARE	325
		EOS CSE SOFTWARE DOCUMENTATION	
326	D13850	FINAL SOFTWARE CONCEPT DOC (CDRL 306-1)	326



LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

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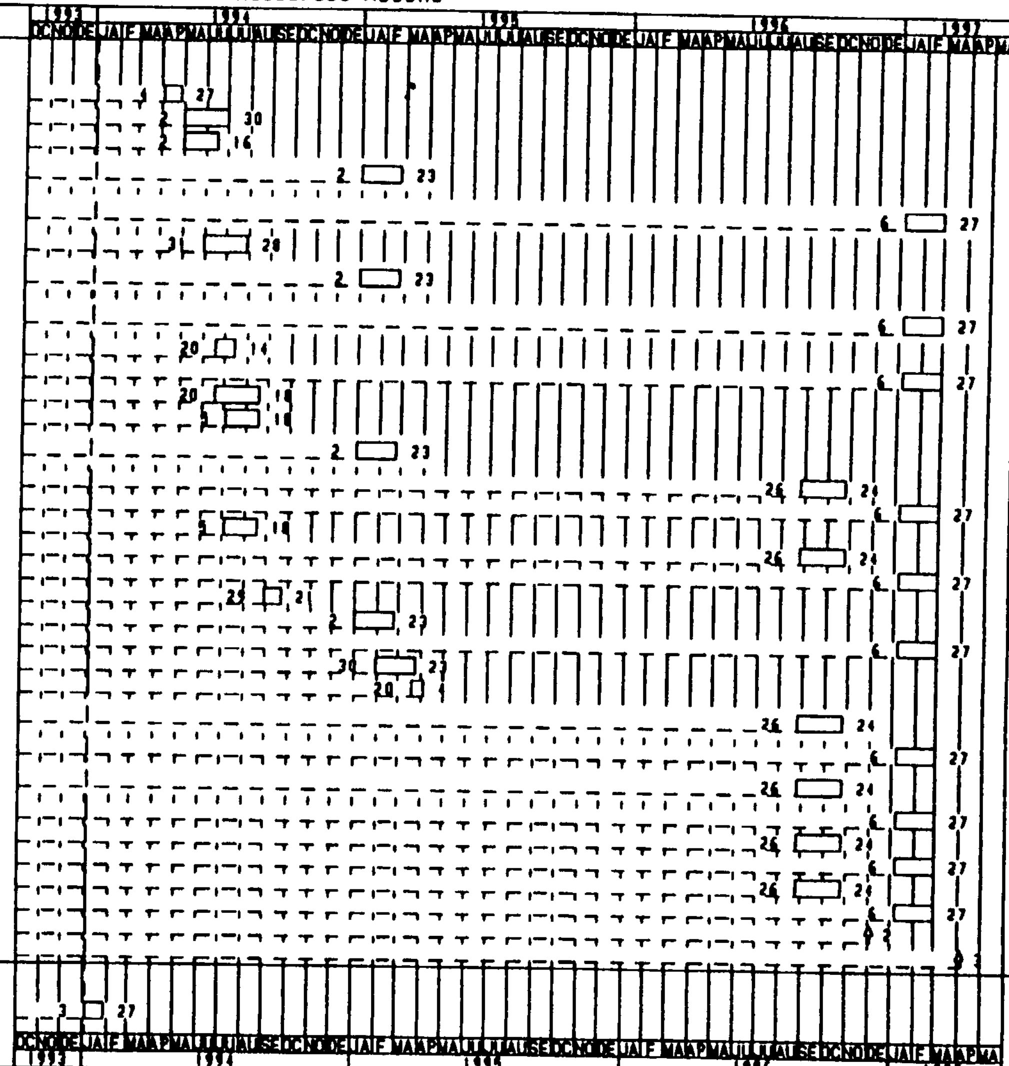
Subassembly:EOS GSE SOFTWARE DOCUMENTATION As Of: 3-JAN-94 Resources Absent

	Activity Code	Activity Description
		EOS GSE SOFTWARE DOCUMENTATION
327	D13900	PREP FOR & SUPPORT DCR
328	D13950	FINAL SOFTWARE TEST PLAN (CDRL 33)
329	D14000	PRELIM INTERFACE REQUIREMENTS DOC (CDRL 306-3)
330	D14020	UPDATE INTERFACE REQUIREMENTS DOC FOR CDR (CDRL 306-3)
331	D14040	FINAL INTERFACE REQUIREMENTS DOC FOR AR (CDRL 306-3)
332	D14050	PRELIM SOFTWARE REQUIREMENTS SPEC (CDRL 306-2)
333	D14070	UPDATE SOFTWARE REQUIREMENTS SPEC FOR CDR (CDRL 306-2)
334	D14090	FINAL SOFTWARE REQUIREMENTS SPEC FOR AR (CDRL 306-2)
335	D14100	PRELIM INTERFACE DESIGN DOC (CDRL 306-6)
336	D14120	FINAL INTERFACE DESIGN DOC FOR AR (CDRL 306-6)
337	D14150	PRELIM DESIGN DOC (CDRL 306-4) (FINAL)
338	D14200	PRELIM SOFTWARE TEST PROCEDURES (CDRL 415)
339	D14210	UPDATE SOFTWARE TEST PROCEDURES FOR CDR (CDRL 415)
340	D14220	SOFTWARE TEST PROCEDURES FOR TRR (CDRL 415)
341	D14240	FINAL SOFTWARE TEST PROCEDURES FOR AR (CDRL 415)
342	D14250	PRELIM SOFTWARE USERS GUIDE (CDRL 306-10)
343	D14270	SOFTWARE USERS GUIDE FOR TRR (CDRL 306-10)
344	D14290	SOFTWARE USERS GUIDE FOR AR (CDRL 306-10)
345	D14300	PREP FOR & SUPPORT PDR
346	D14302	PRELIM DETAILED DESIGN DOCUMENT - CDRL 306-5
347	D14304	FINAL DETAILED DESIGN DOCUMENT - CDRL 306-5
348	D14306	PRELIM SOFTWARE MAINTENANCE MANUAL - CDRL 306-11
349	D14307	PREP FOR & SUPPORT CDR
350	D14308	SOFTWARE MAINTENANCE MANUAL FOR TRR - CDRL 306-11
351	D14310	SOFTWARE MAINTENANCE MANUAL FOR AR - CDRL 306-11
352	D14312	VERSION DESCRIPTION DOCUMENT FOR TRR - CDRL 306-8
353	D14315	VERSION DESCRIPTION DOCUMENT FOR AR - CDRL 306-8
354	D14320	OPERATIONS PROCEDURE MANUAL FOR TRR - CDRL 306-9
355	D14325	OPERATIONS PROCEDURE MANUAL FOR AR - CDRL 306-9
356	D14330	SOFTWARE TEST REPORTS FOR TRR - CDRL 217
357	D14335	SOFTWARE TEST REPORTS FOR AR - CDRL 217
358	D14340	SOFTWARE TRR (TEST READINESS REVIEW) - CDRL 26
359	D14345	SOFTWARE AR (ACCEPTANCE REVIEW) - CDRL 28
		EOS GSE SOFTWARE - MODIFIED STE
360	D14350	CYCLE 1 PLANNING - STE



LRE Schedule | Orig Sched. Accompl'd | Critical Activity | ◆ ◆ 1 Day Open/Complete | ● 1 Day *CRITICAL* | Analyzed Dates | EDB

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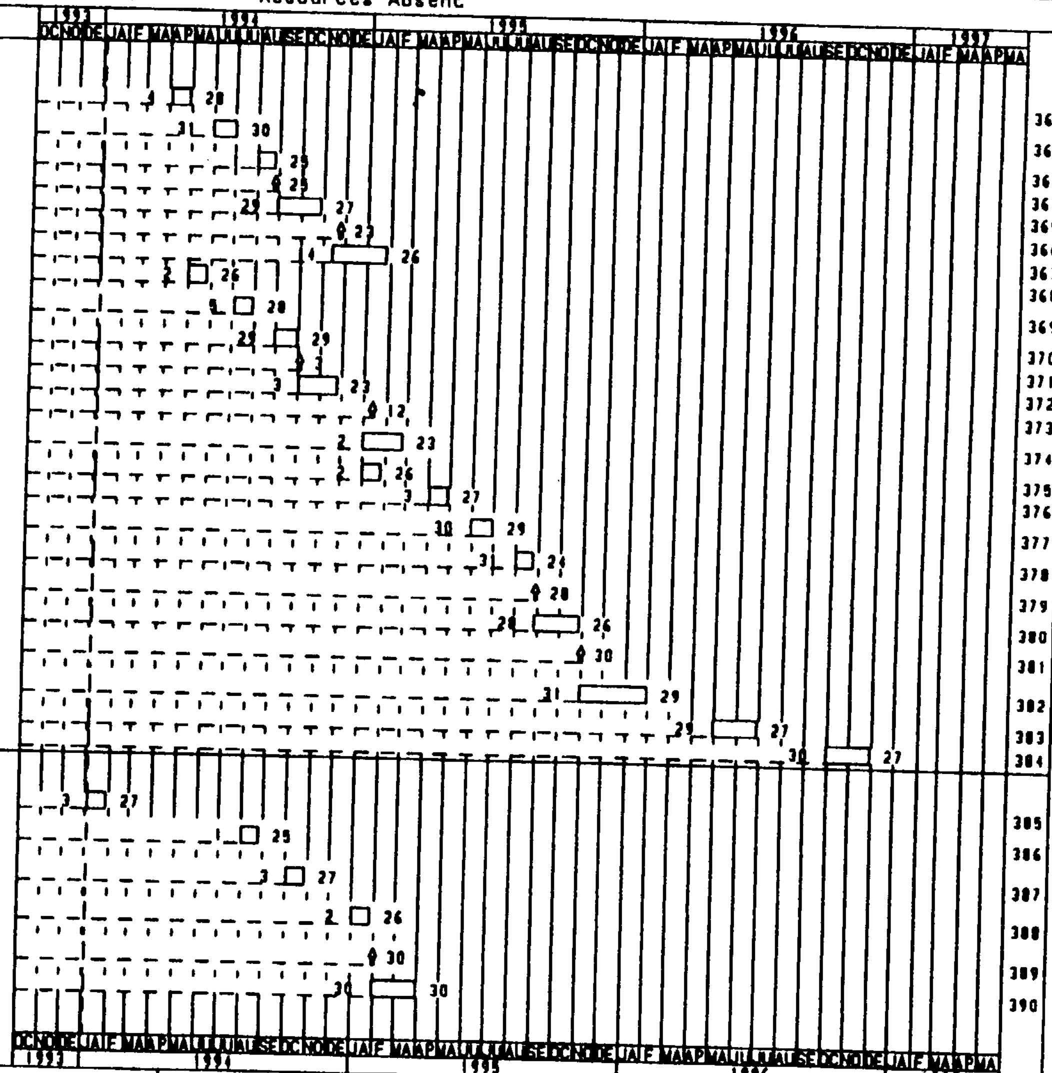
Subassembly: EOS GSE SOFTWARE - MODIFIED STE   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS GSE SOFTWARE - MODIFIED STE
361	D14450	CYCLE 2 INPUT MOD - DETERMINE OBJECTIVES - STE
362	D14500	CYCLE 2 INPUT MOD - DETERMINE SUCCESS CRITERIA - STE
363	D14550	CYCLE 2 INPUT MOD - FORMULATE STRATEGY - STE
364	D14600	CYCLE 2 INPUT MOD - 1ST INTERNAL REVIEW - STE
365	D14650	CYCLE 2 INPUT MOD - DEVELOP CODE - STE
366	D14700	CYCLE 2 INPUT MOD - FINAL INTERNAL REVIEW - STE
367	D14750	CYCLE 2 INPUT MOD - VERIFY & VALIDATE CODE- STE
368	D14800	CYCLE 3 COMMAND MOD - DETERMINE OBJECTIVES- STE
369	D14850	CYCLE 3 COMMAND MOD - DETERMINE SUCESS CRITERIA- STE
370	D14900	CYCLE 3 COMMAND MOD - FORMULATE STRATEGY- STE
371	D14950	CYCLE 3 COMMAND MOD - 1ST INTERNAL REVIEW- STE
372	D15000	CYCLE 3 COMMAND MOD - DEVELOP CODE- STE
373	D15050	CYCLE 3 COMMAND MOD - FINAL INTERNAL REVIEW- STE
374	D15100	CYCLE 3 COMMAND MOD - VERIFY & VALIDATE CODE- STE
375	D15120	CYCLE 4 PLANNING- INTEGRATION- STE
376	D15150	CYCLE 4 INTEGRATION - DETERMINE OBJECTIVES- STE
377	D15200	CYCLE 4 INTEGRATION - DETERMINE SUCCESS CRITERIA - STE
378	D15250	CYCLE 4 INTEGRATION - FORMULATE STRATEGY - STE
379	D15300	CYCLE 4 INTEGRATION - PRE-CODE INTERNAL REVIEW - STE
380	D15350	CYCLE 4 INTEGRATION - DEVELOP CODE - STE
381	D15400	CYCLE 4 INTEGRATION - POST-CODE INTERNAL REVIEW - STE
382	D15450	CYCLE 4 INTEGRATION - VERIFY & VALIDATE CODE - STE
383	D15500	CYCLE 5 DRY RUN TESTING - STE
384	D15550	FORMAL QUALIFICATION TESTING - STE
		EOS GSE SOFTWARE - SPACECRAFT CSTOL WORKSTATION
385	D15700	CYCLE 1 PLANNING - CSTOL WS
386	D15750	CYCLE 2 MENU CONSTRUCTION - DETERMINE OBJECTIVES - CSTOL WS
387	D15800	CYCLE 2 MENU CONSTRUCTION - DETERMINE SUCCESS CRITERIA - CSTOLWS
388	D15850	CYCLE 2 MENU CONSTRUCTION - FORMULATE STRATEGY - CSTOL WS
389	D15900	CYCLE 2 MENU CONSTRUCTION - 1ST INTERNAL REVIEW - CSTOL WS
390	D16000	CYCLE 2 MENU CONSTRUCTION - DEV CODE - CSTOL WS

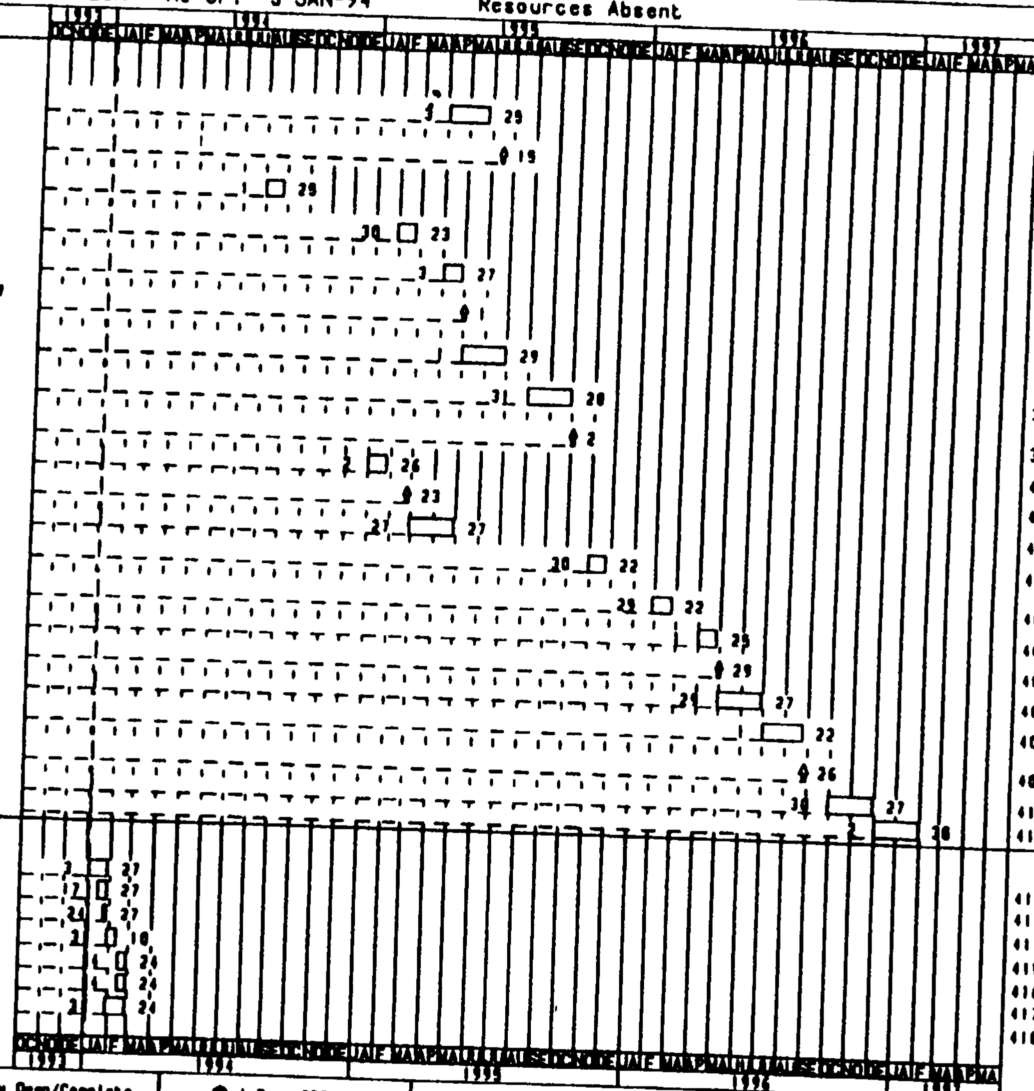


LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | ◆ ◆ 1 Day Open/Complete | ● 1 Day «CRITICAL» | Analyzed Dates | EOS

METED ARTEMIS   AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 18-JAN-94 10.58 am   Page 12 of 16

Subassembly: EOS GSE SOFTWARE - SPACECRAFT CSTOL WORKSTATION As Of: 3-JAN-94 Resources Absent

	Activity Code	Activity Description
		EOS GSE SOFTWARE - SPACECRAFT CSTOL WORKSTATION
391	D16050	CYCLE 2 MENU CONSTRUCTION - VERIFY & VALIDATE CODE - CSTOL WS
392	D16100	CYCLE 2 MENU CONSTRUCTION - FINAL INTERNAL REVIEW - CSTOL WS
393	D16150	CYCLE 3 INPUT TABLE DESIGN - DETERMINE OBJECTIVES - CSTOL WS
394	D16200	CYCLE 3 INPUT TABLE DESIGN - DETERMINE SUCCESS CRITERIA - CSTOL WS
395	D16250	CYCLE 3 INPUT TABLE DESIGN - FORMULATE STRATEGY - CSTOL WS
396	D16300	CYCLE 3 INPUT TABLE DESIGN - 1ST INTERNAL REVIEW - CSTOL WS
397	D16350	CYCLE 3 INPUT TABLE DESIGN - DEVELOP CODE - CSTOL WS
398	D16400	CYCLE 3 INPUT TABLE DESIGN - VERIFY & VALIDATE CODE - CSTOL WS
399	D16450	CYCLE 3 INPUT TABLE DESIGN - FINAL INTERNAL REVIEW - CSTOL WS
400	D16470	CYCLE 4 PLANNING - INTEGRATION - CSTOL WS
401	D16490	RECEIVE OASIS/CSTOL FROM COLORADO UNIV - SCHEDULE TBD
402	D16500	CYCLE 4 INSTALL OASIS/CSTOL
403	D16550	CYCLE 5 INTEGRATION - DETERMINE OBJECTIVES - CSTOL WS
404	D16600	CYCLE 5 INTEGRATION - DETERMINE SUCCESS CRITERIA - CSTOL WS
405	D16650	CYCLE 5 INTEG - FORMULATE STRATEGY - CSTOL WS
406	D16700	CYCLE 5 INTEGRATION - PRE-CODE INTERNAL REVIEW - CSTOL WS
407	D16750	CYCLE 5 INTEGRATION - DEVELOP CODE - CSTOL WS
408	D16800	CYCLE 5 INTEGRATION - VERIFY & VALIDATE CODE - CSTOL WS
409	D16850	CYCLE 5 INTEGRATION - POST-CODE INTERNAL REVIEW - CSTOL WS
410	D16900	CYCLE 6 DRY RUN TESTING - CSTOL WS
411	D16950	FORMAL QUALIFICATION TESTING - CSTOL WS
		EOS GSE REQUIREMENTS & DESIGN CONCEPT DEVELOPMENT
412	D17000	STE TECHNICAL REQUIREMENTS
413	D17050	CALIB EQUIP TECHNICAL REQUIREMENTS
414	D17100	MOUNTING TEMPLATE REQUIREMENTS
415	D17150	WORKSTATION REQUIREMENTS
416	D17200	HANDLING FIXTURE REQUIREMENTS
417	D17250	CALIB FIXTURE REQUIREMENTS
418	D17300	GSE DESIGN CONCEPT



LRE Schedule Orig Sched Accompl'd Critical Activity 1 Day Open/Complete 1 Day *CRITICAL* Analyzed Dates EDS

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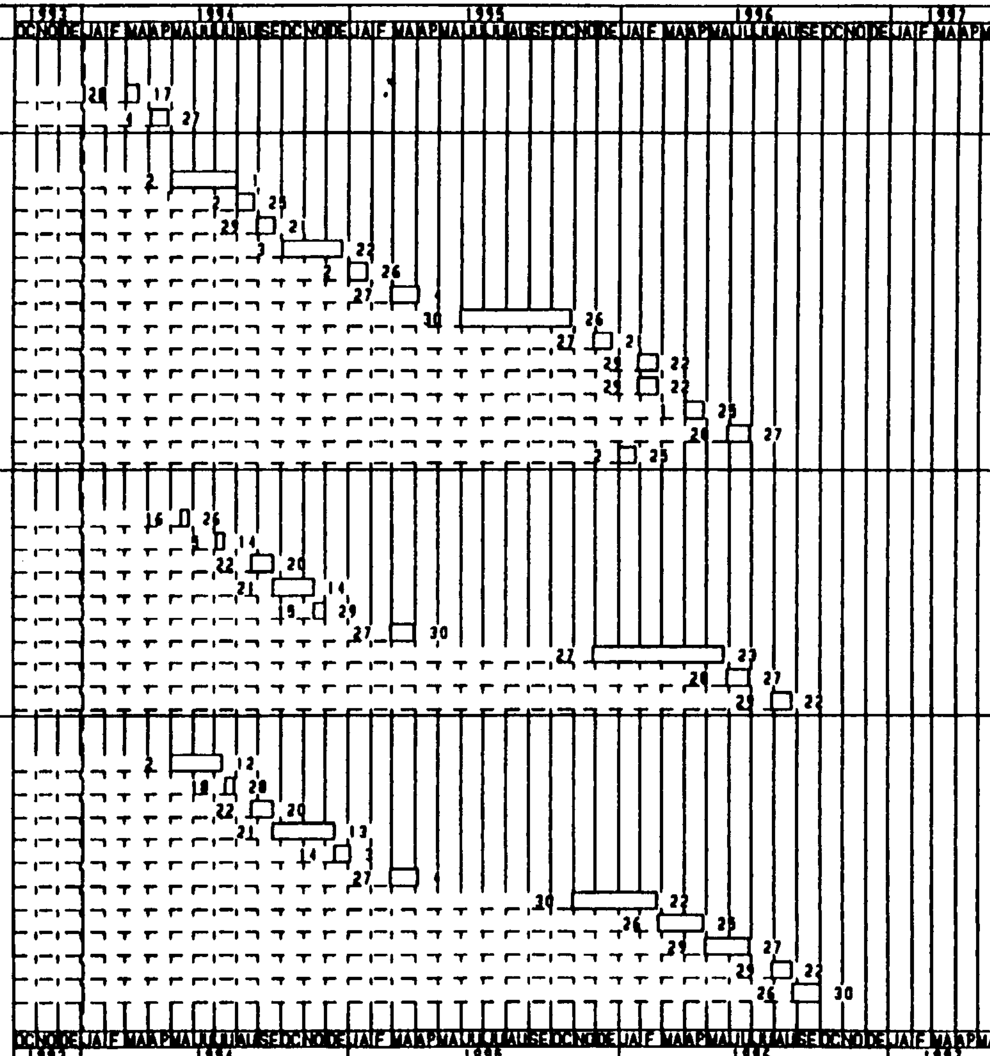
Subassembly:EOS GSE REQUIREMENTS & DESIGN CONCEPT DEVELOPMENT   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description	
		EOS GSE REQUIREMENTS & DESIGN CONCEPT DEVELOPMENT	
419	D17350	GSE INTERNAL DESIGN REVIEW	419
420	D17400	GSE - PREP FOR & SUPPORT DCR	420
		EOS SPECIAL TEST EQUIPMENT	
421	D17500	STE PRELIMINARY DESIGN	421
422	D17550	STE INTERNAL DESIGN REVIEW	422
423	D17600	STE - PREP FOR & SUPPORT PDR	423
424	D17650	STE DETAILED DESIGN	424
425	D17700	STE FINAL INTERNAL DESIGN REVIEW	425
426	D17750	STE - PREP FOR & SUPPORT CDR	426
427	D17800	STE MATERIAL PROCUREMENT	427
428	D17850	STE FABRICATION	428
429	D17900	STE CABLE FABRICATION	429
430	D17950	STE ASSEMBLY & WIRING	430
431	D18000	STE INSPECTION	431
432	D18050	STE CHECK-OUT & SYSTEM TEST	432
433	D18100	STE TEST PROCEDURE REVISION	433
		EOS SPACECRAFT WORKSTATION	
434	D18200	S/C WORKSTATION PRELIMINARY DESIGN	434
435	D18250	S/C WS INTERNAL DESIGN REVIEW	435
436	D18300	S/C WS - PREP FOR & SUPPORT PDR	436
437	D18350	S/C WORKSTATION DETAILED DESIGN	437
438	D18400	S/C WS FINAL INTERNAL DESIGN REVIEW	438
439	D18450	S/C WS - PREP FOR & SUPPORT CDR	439
440	D18500	S/C WORKSTATION MATERIAL PROCUREMENT	440
441	D18550	S/C WS TEST PROCEDURES	441
442	D18600	CHECK-OUT S/C WORKSTATION	442
		EOS INSTRUMENT HANDLING FIXTURES	
443	D18700	HANDLING FIXTURES PRELIMINARY DESIGN	443
444	D18750	HANDLING FIXT INTERNAL DESIGN REVIEW	444
445	D18800	HANDLING FIXT - PREP FOR & SUPPORT PDR	445
446	D18850	HANDLING FIXTURES DETAILED DESIGN	446
447	D18900	HANDLING FIXT FINAL INTERNAL DESIGN REVIEW	447
448	D18950	HANDLING FIXT - PREP FOR & SUPPORT CDR	448
449	D19000	HANDLING FIXT MATERIAL PROCUREMENT	449
450	D19050	HANDLING FIXT FABRICATION	450
451	D19100	HANDLING FIXTURES ASSEMBLY	451
452	D19150	HANDLING FIXT INSPECTION	452
453	D19200	HANDLING FIXT PROOF TEST	453



LRE Schedule Orig. Sched. Accompl'd Critical Activity 1 Day Open/Complete 1 Day *CRITICAL* Analyzed Dates EOS

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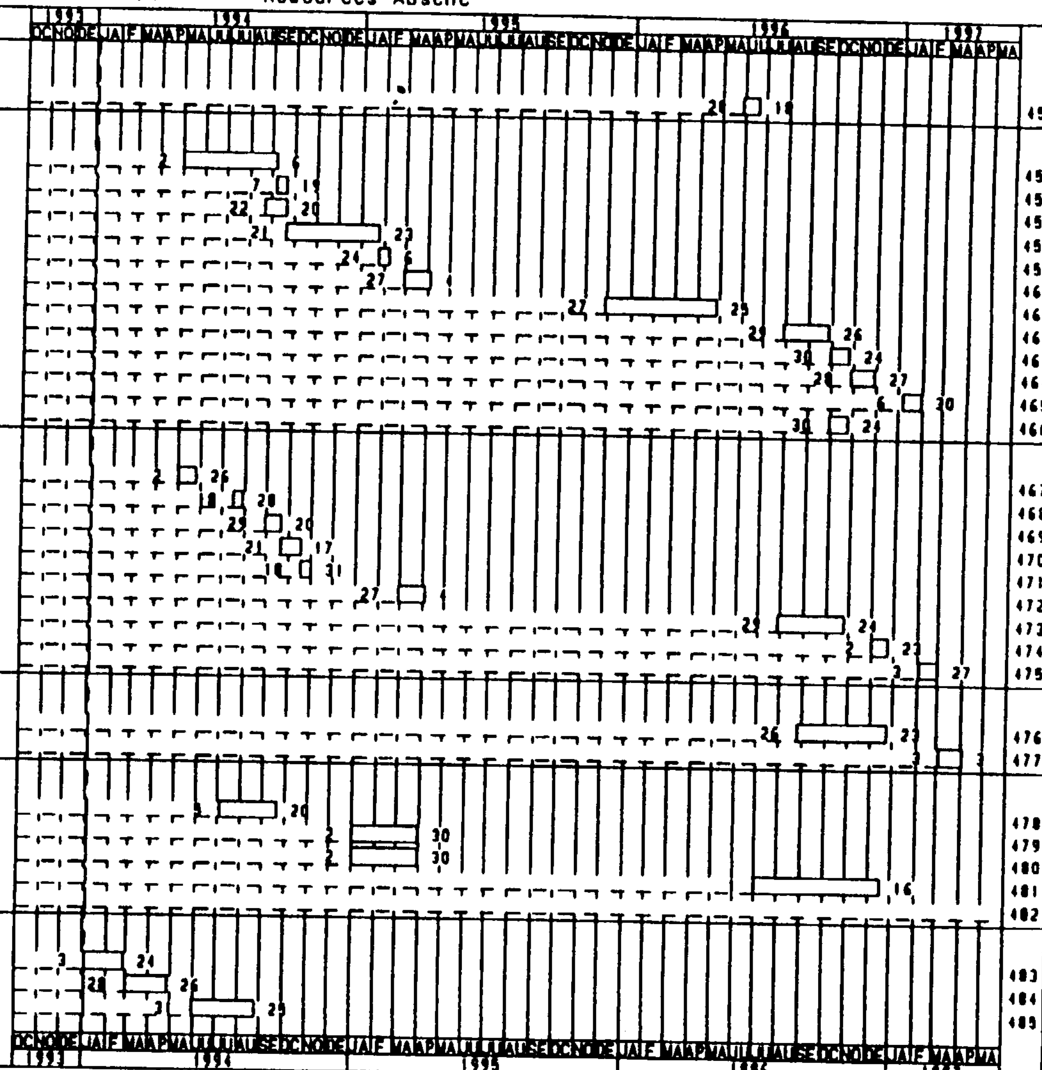
Subassembly: EOS INSTRUMENT HANDLING FIXTURES   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS INSTRUMENT HANDLING FIXTURES
454	D19250	HANDLING FIXT PROOF TEST PROCEDURE REVISION
		EOS AT CALIBRATION FIXTURE MODIFICATION
455	D19400	CALIB FIXTURE PRELIMINARY DESIGN
456	D19450	CALIB FIXT INTERNAL DESIGN REVIEW
457	D19500	CALIB FIXT - PREP FOR & SUPPORT PDR
458	D19550	CALIB FIXTURE DETAILED DESIGN
459	D19600	CALIB FIXT FINAL INTERNAL DESIGN REVIEW
460	D19650	CALIB FIXT - PREP FOR & SUPPORT CDR
461	D19700	CALIB FIXT MATERIAL PROCUREMENT
462	D19750	CALIB FIXT FABRICATION
463	D19800	CALIB FIXTURE ASSEMBLY
464	D19850	CALIB FIXT INSPECTION
465	D19900	CALIB FIXT TEST
466	D19950	CALIB FIXT TEST PROCEDURE REVISION
		EOS MOUNTING TEMPLATES
467	D20000	MOUNTING TEMPLATES PRELIMINARY DESIGN
468	D20050	MTG TEMP INTERNAL DESIGN REVIEW
469	D20100	MTG TEMP - PREP FOR & SUPPORT PDR
470	D20150	MOUNTING TEMPLATES DETAILED DESIGN
471	D20200	MTG TEMP FINAL INTERNAL DESIGN REVIEW
472	D20250	MTG TEMP - PREP FOR & SUPPORT CDR
473	D20300	MTG TEMP MATERIAL PROCUREMENT
474	D20350	MOUNTING TEMPLATES FABRICATION
475	D20400	MOUNTING TEMPLATES INSPECTION
		EOS SHIPPING/STORAGE CONTAINERS
476	D20500	SHIP/STORAGE CONTAINERS PROCUREMENT
477	D20550	SHIP/STORAGE CONTAINERS INSPECTION
		EOS DESIGN ASSURANCE - SYSTEM SAFETY
478	D21000	PRELIMINARY HAZARD ANALYSIS - CDRL 106
479	D21050	FINAL HAZARD ANALYSIS - CDRL 106
480	D21100	SAFETY COMPLIANCE PACKAGE - CDRL 224
481	D21200	OPS HAZARD ANALYSIS - CDRL 107
482	D21300	LAUNCH COMPLEX SAFETY (ARAR) - CDRL 034
		EOS DESIGN ASSURANCE - PARTS CONTROL
483	D21500	DPA PROCEDURE - CDRL 403
484	D21550	DERATING POLICY - CDRL 502
485	D21600	PRELIMINARY CRITICAL ITEM LIST - CDRL 507



LRE Schedule | Orig. Sched Accompl'd | Critical Activity | ♦ ♦ 1 Day Open/Complete | 1 Day ●CRITICAL● | Analyzed Dates | EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 10-JAN-94 10.58 am

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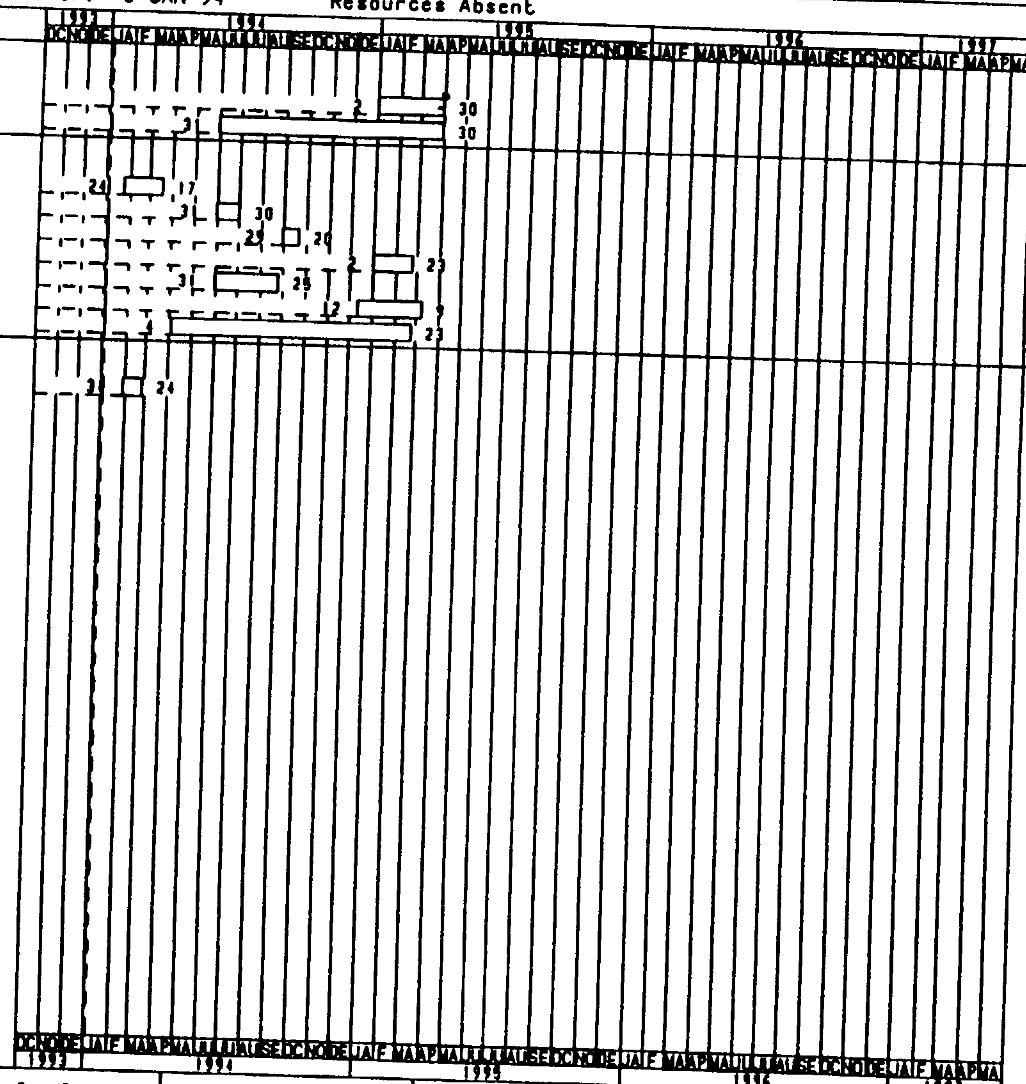
Subassembly: EOS DESIGN ASSURANCE - PARTS CONTROL   As Of: 3-JAN-94   Resources Absent

	Activity Code	Activity Description
		EOS DESIGN ASSURANCE - PARTS CONTROL
486	D21650	FINAL CRITICAL ITEM LIST - CDRL 507
487	D21700	PARTS & DEVICES STRESS ANALYSIS - CDRL 109
		EOS DESIGN ASSURANCE - RELIABILITY
488	D21750	DESIGN ASSURANCE PLAN
489	D21800	WORST CASE ANALYSIS 1 - CDRL 112
490	D21850	WORST CASE ANALYSIS 2 - CDRL 112
491	D21900	WORST CASE ANALYSIS 3 - CDRL 112
492	D21950	PRELIMINARY FMEA - CDRL 108
493	D22000	FINAL FMEA - CDRL 108
494	D22050	RELIABILITY ASSESSMENT - CDRL 110
		EOS QUALITY ASSURANCE
495	D22200	QUALITY ASSURANCE PLAN UPDATE



LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day *CRITICAL* | Analyzed Dates | EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EDS) 18-JAN-94 10.58 am

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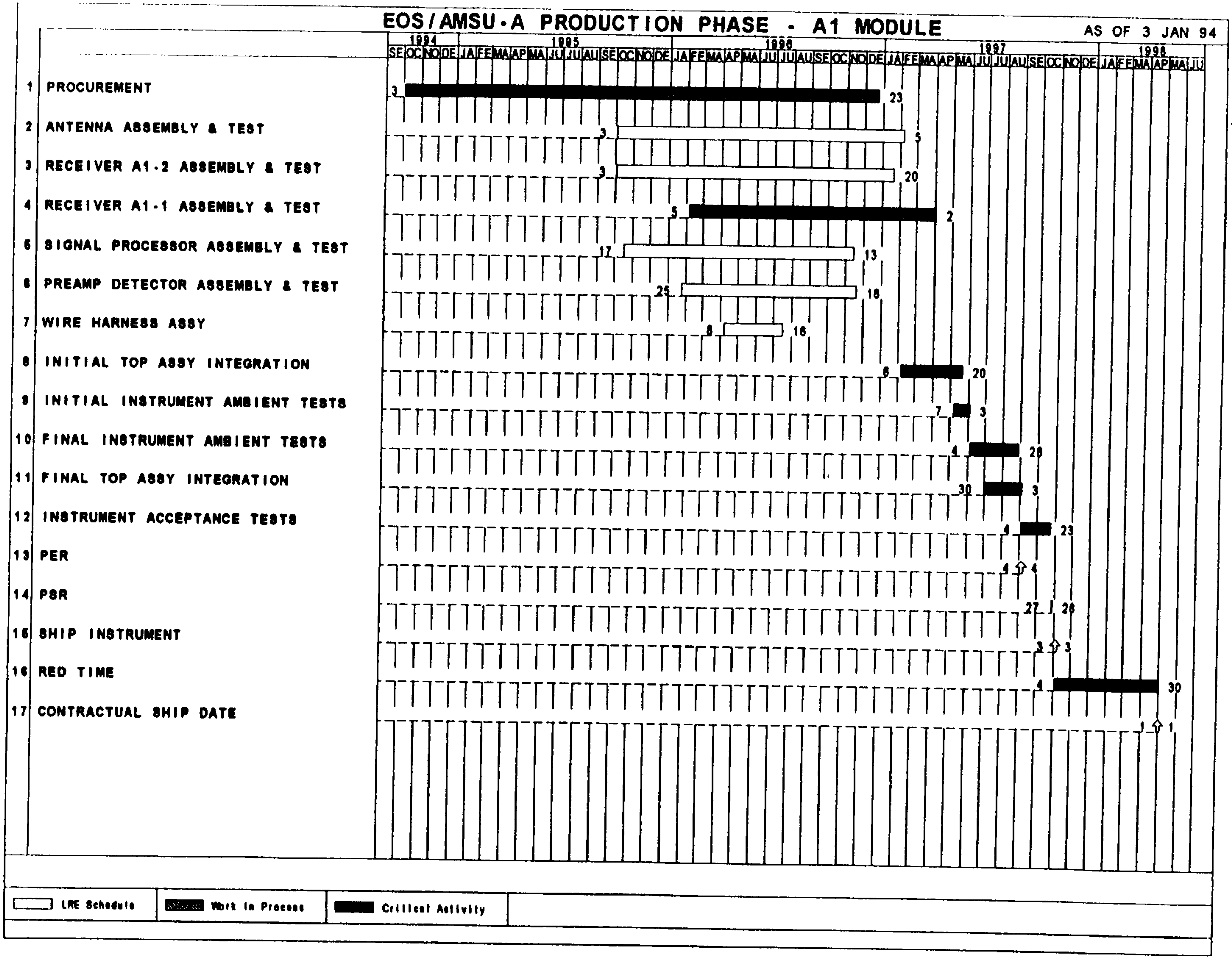
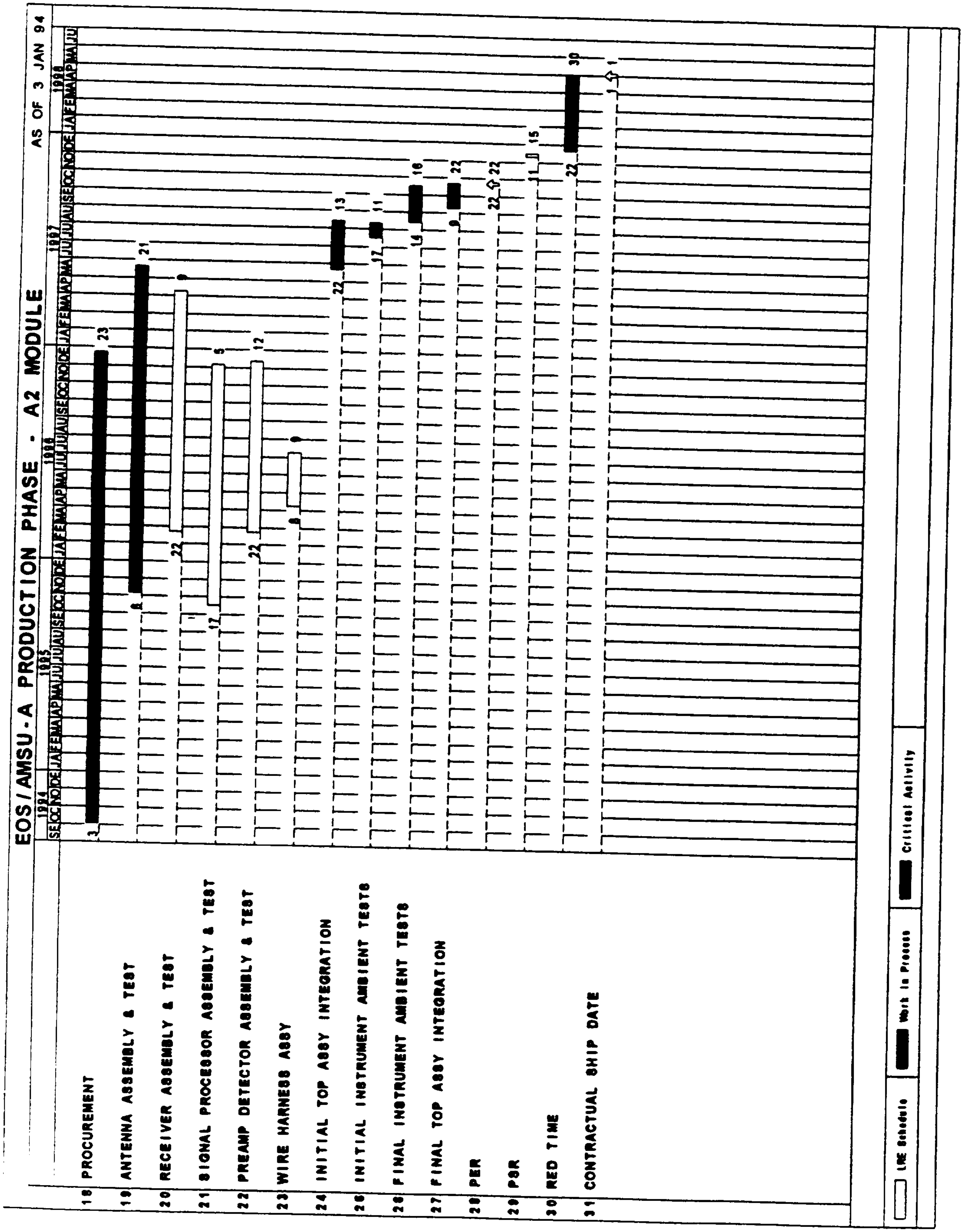
Appendix D

Intermediate Level Production Phase Schedule


EOS/AMSU-A PRODUCTION PHASE - A1 MODULE
AS OF 3 JAN 94
1994
1995
1996
1997
1998
1 PROCUREMENT
2 ANTENNA ASSEMBLY & TEST
3 RECEIVER A1-2 ASSEMBLY & TEST
4 RECEIVER A1-1 ASSEMBLY & TEST
5 SIGNAL PROCESSOR ASSEMBLY & TEST
6 PREAMP DETECTOR ASSEMBLY & TEST
7 WIRE HARNESS ASSY
8 INITIAL TOP ASSY INTEGRATION
9 INITIAL INSTRUMENT AMBIENT TESTS
10 FINAL INSTRUMENT AMBIENT TESTS
11 FINAL TOP ASSY INTEGRATION
12 INSTRUMENT ACCEPTANCE TESTS
13 PER
14 PSR
15 SHIP INSTRUMENT
16 RED TIME
17 CONTRACTUAL SHIP DATE
LRE Schedule
Work in Process
Critical Activity


EOS/AMSU-A PRODUCTION PHASE - A2 MODULE
AS OF 3 JAN 94
1994
1995
1996
1997
1998
18 PROCUREMENT
19 ANTENNA ASSEMBLY & TEST
20 RECEIVER ASSEMBLY & TEST
21 SIGNAL PROCESSOR ASSEMBLY & TEST
22 PREAMP DETECTOR ASSEMBLY & TEST
23 WIRE HARNESS ASSY
24 INITIAL TOP ASSY INTEGRATION
25 INITIAL INSTRUMENT AMBIENT TESTS
26 FINAL INSTRUMENT AMBIENT TESTS
27 FINAL TOP ASSY INTEGRATION
28 PER
29 PSR
30 RED TIME
31 CONTRACTUAL SHIP DATE
LRE Schedule
Work In Process
Critical Activity

Appendix E

90-Day Window Schedule

EOS/AMSU-A 90 DAY WINDOW SCHEDULE

AS OF 3 JAN 94

Time window: DEC 1993 – JAN, FEB, MAR 1994

	Activity Code	Activity Description	Start	Finish
		EOS/AMSU-A DESIGN PHASE		
1	D05	START IMPLEMENTATION PHASE	3	
2	D10	PROJECT INITIATION MEETING	19	
		EOS SYSTEMS ENGINEERING REQUIREMENTS REVIEW & FLOWDOWN		
3	D50	REVIEW & DOCUMENT SYSTEM REQTS	3	24
4	D100	REVIEW & DOCUMENT SUBSYSTEM REQTS	3	17
5	D150	REVIEW & UPDATE COMPONENT SPECS & SOWS	31	
6	D200	UPDATE & MAINTAIN WEIGHT & POWER BUDGETS	28	
7	D250	PREP PRELIM PREVIOUSLY DESIGNED HDWE REPORT-CDRL 201	28	17
		EOS SYSTEMS ENGINEERING SYSTEM DEFINITION		
8	D300	REVIEW & UPDATE SYSTEM ARCHITECTURE	14	
9	D450	PRELIMINARY INTERNAL REVIEW OF SUBSYSTEM DESIGNS	14	
10	D500	DEVELOP RADIOMETRIC MATH MODEL (CDRL 101) - SCOPE	28	
		EOS SYSTEMS ENGINEERING SPACECRAFT INTERFACE DESIGN		
11	D600	RECOMMENDED CHANGES TO THE IDD & UIID	3	24
12	D650	PREP COMMAND LIST DESC DOC (CDRL 303) - PRELIM	14	10
13	D750	PREP ENG TELEMETRY DESC DOC (CDRL 305) - PRELIM	28	
14	D850	UPDATE INTERFACE DESC DOC (CDRL 519) - INITIAL	28	
		EOS SYSTEMS ENGINEERING SYSTEM PLANS & PROCEDURES		
15	D950	PREP PERF VERIF PLAN (CDRL 022) & SPEC (CDRL 308) - PRELIM	3	
16	D1050	PREP CALIBRATION MANAGEMENT PLAN (CDRL 018) - PRELIM	17	17
		EOS SYSTEMS ENGINEERING MEETING SUPPORT		
17	D1300	PREP FOR & SUPPORT DCR	15	
		EOS SPARES DEFINITION		
18	D1400	PREP SPARES PROGRAM PLAN - PRELIM	3	17
		EOS RADIATION ANALYSIS		
19	D1500	PRELIM DATA BASE SEARCHES	3	27
20	D1550	PRELIM SHIELDING ANALYSIS/DESIGN CRITERIA MEMO	17	
21	D1600	PRELIM PARTS ASSESSMENT	31	
		EOS EMI/EMC DESIGN ANALYSIS SUPPORT		
22	D1700	EMI/EMC DESIGN ANALYSIS & SUPPORT	3	
23	D1750	PREP FOR & SUPPORT DCR	21	

LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day "CRITICAL" | Analyzed Dates | EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 18-JAN-94 2.12 pm

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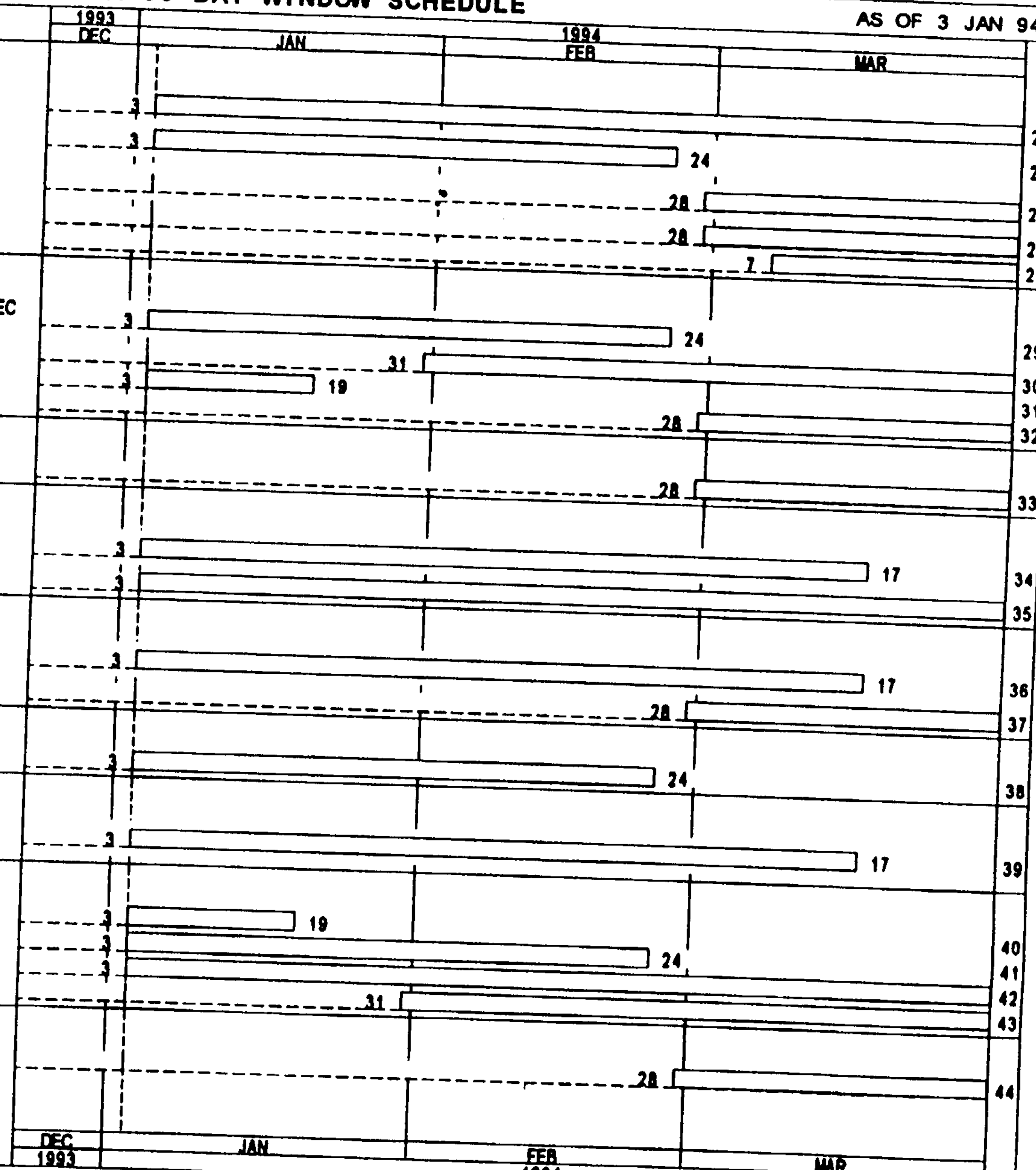
EOS/AMSU-A 90 DAY WINDOW SCHEDULE

AS OF 3 JAN 94

	Activity Code	Activity Description
		EOS CONTAMINATION CONTROL
24	D2000	ESTABLISH INSTRUMENT CONTAMINATION ALLOWANCES
25	D2150	ESTABLISH CONTAMINATION REQ'TS & CONCEPTS FOR BAKEOUT, T/V, FAB/ASSY/TEST & FACILITIES
26	D2600	ESTABLISH CLEANLINESS VERIFICATION REQ'TS & CONCEPTS
27	D2830	SUPPORT SUBCONTRACTOR SPEC REVIEWS & UPDATES
28	D2850	PREPARE & ISSUE CONTAM CONTROL PLAN - OUTLINE
		EOS RECEIVER SUBSYSTEM
29	D3100	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN TO REC SUBSYS
30	D3200	UPDATE COMPONENT SOW & SPEC
31	D3400	PREP FOR & SUPPORT PROJECT INITIATION MEETING
32	D3450	PREP FOR & SUPPORT DCR
		EOS PLO DEVELOPMENT
33	D22500	PLO SPECIFICATION
		EOS SIGNAL PROCESSOR ASSY - DIGITAL PROCESSING
34	D3930	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN TO SIGNAL PROC- DIGITAL PROC
35	D3950	DESIGN & ANALYSIS - DIGITAL PROC
		EOS SIGNAL PROCESSOR ASSY - ANALOG PROCESSING
36	D4440	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN - ANALOG PROC
37	D4450	DESIGN - ANALOG PROC
		EOS POWER SUBSYSTEM - DC/DC CONVERTER
38	D4860	DC/DC CONVERTER PROPOSAL EVALUATION
		EOS POWER SUBSYSTEM - CONTROL & DISTRIBUTION
39	D5060	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN - PWR CONTROL
		EOS A1 MECHANICAL DESIGN
40	D6600	PREP FOR & SUPPORT PROJECT INITIATION MEETING
41	D6650	REQUIREMENTS FLOWDOWN
42	D6700	BOTTOM MOUNT CAD MODEL - A1
43	D6750	BOTTOM MOUNT STRESSES - A1
		EOS A2 MECHANICAL DESIGN
44	D7400	UPDATE 3D CAD MODEL - A2



LRE Schedule | Orig. Sched. Accompl'd | Critical Activity | 1 Day Open/Complete | 1 Day 'CRITICAL' | Analyzed Dates | EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 18-JAN-94 2.12 pm

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EOS/AMSU-A 90 DAY WINDOW SCHEDULE

AS OF 3 JAN 94

Timescale: 1993 DEC; 1994 JAN, FEB, MAR

	Activity Code	Activity Description	Start	Finish
		EOS MECHANICAL/THERMAL INTEGRATED PRODUCT TEAM		
45	D7900	CONCEPTUAL PACKAGE REVIEW - M/T IPT	3	27
46	D7950	ID DRAWINGS TO CHANGE - M/T IPT	31	
		EOS MECHANICAL COST REDUCTIONS		
47	D8255	ALUMINUM RF SHELF STRESSES & THERMAL ANALYSIS	3	24
		EOS A1 THERMAL ANALYSIS		
48	D8300	PREP FOR & SUPPORT PROJECT INITIATION MEETING	3	19
49	D8320	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN	3	17
		EOS A2 THERMAL ANALYSIS		
50	D9150	PREP FOR & SUPPORT PROJECT INITIATION MEETING	3	19
		EOS ANTENNA SUBSYSTEM DESIGN		
51	D10000	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN TO ANTENNA SUBSYSTEM	3	17
52	D10450	PREP FOR & SUPPORT PROJECT INITIATION MEETING	3	19
		EOS DRIVE MOTOR MECHANICAL DESIGN		
53	D11000	SPEC REVIEW & UPDATE - MECHANICAL	21	
54	D11050	A1 MOTOR HOUSING MOD	21	
		EOS DRIVE MOTOR ELECTRICAL DESIGN		
55	D11300	MOTOR SPEC REVIEW & UPDATE - ELECTRICAL	21	
56	D11350	RESOLVER SPEC REVIEW & UPDATE	21	
		EOS SOFTWARE PLANNING DOCUMENTS & REQUIREMENTS		
57	D13600	SOFTWARE MANAGEMENT PLAN (CDRL 8)		27
58	D13620	SUPPORT SYSTEM ENGR REQUIREMENTS FLOWDOWN	3	17
59	D13650	SOFTWARE STANDARDS & PROCEDURES PLAN (CDRL 402)	12	27
60	D13700	ACQUISITION ACTIVITIES PLAN (CDRL 508)	7	17
61	D13750	PRELIM SOFTWARE ASSURANCE PLAN	31	17
		EOS FIRMWARE DOCUMENTATION		
62	D12800	FINAL FIRMWARE CONCEPT DOCUMENT (CDRL 306-1)	31	17
63	D12950	PRELIM INTERFACE REQUIREMENTS DOC (CDRL 306-3)	21	
64	D13000	PRELIM FIRMWARE REQUIREMENTS SPEC (CDRL 306-3)	21	
		EOS GSE SOFTWARE DOCUMENTATION		
65	D13850	FINAL SOFTWARE CONCEPT DOC (CDRL 306-1)	31	17
		EOS GSE SOFTWARE - MODIFIED STE		
66	D14350	CYCLE 1 PLANNING - STE	3	27

LRE Schedule · Orig. Sched. Accompl'd · Critical Activity · 1 Day Open/Complete · 1 Day "CRITICAL" · Analyzed Dates · EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 18-JAN-94 2.12 pm

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EOS/AMSU-A 90 DAY WINDOW SCHEDULE

AS OF 3 JAN 94

	Activity Code	Activity Description	Start	Finish
	EOS GSE SOFTWARE - SPACECRAFT CSTOL WORKSTATION			
67	D15700	CYCLE 1 PLANNING - CSTOL WS	3	27
	EOS GSE REQUIREMENTS & DESIGN CONCEPT DEVELOPMENT			
68	D17000	STE TECHNICAL REQUIREMENTS	3	27
69	D17050	CALIB EQUIP TECHNICAL REQUIREMENTS	17	27
70	D17100	MOUNTING TEMPLATE REQUIREMENTS	24	27
71	D17150	WORKSTATION REQUIREMENTS	31	10
72	D17200	HANDLING FIXTURE REQUIREMENTS	14	24
73	D17250	CALIB FIXTURE REQUIREMENTS	14	24
74	D17300	GSE DESIGN CONCEPT	31	24
75	D17350	GSE INTERNAL DESIGN REVIEW	28	17
	EOS DESIGN ASSURANCE - PARTS CONTROL			
76	D21500	DPA PROCEDURE - CDRL 403	3	24
77	D21550	DERATING POLICY - CDRL 502	28	
	EOS DESIGN ASSURANCE - RELIABILITY			
78	D21750	DESIGN ASSURANCE PLAN	24	17
	EOS QUALITY ASSURANCE			
79	D22200	QUALITY ASSURANCE PLAN UPDATE	31	24

Timeline: 1993 DEC | 1994 JAN | FEB | MAR

Legend: LRE Schedule; Orig. Sched. Accompl'd; Critical Activity; 1 Day Open/Complete; 1 Day 'CRITICAL'; Analyzed Dates; EOS

AEROJET Electronic Systems Division (ID 202 NETWORK: EOS) 18-JAN-94 2.12 pm

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NASA
National Aeronautics and Space Administration

Report Documentation Page

1. Report No.	2. Government Accession No. ---	3. Recipient's Catalog No. ---
4. Title and Subtitle Earth Observing System/Advanced Microwave Sounding Unit -A (EOS/AMSU-A), Schedule Plan		5. Report Date July 1994
		6. Performing Organization Code ---
7. Author(s) Larry Van Riper		8. Performing Organization Report No. 10392A July 1994
		10. Work Unit No. ---
9. Performing Organization Name and Address Aerojet 1100 W. Hollyvale Azusa, CA 91702		11. Contract or Grant No. NAS5-32314
12. Sponsoring Agency Name and Address NASA Goddard Space Flight Center Greenbelt, Maryland 20771		13. Type of Report and Period Covered Final
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15. Supplementary Notes ---		

16. ABSTRACT (*Maximum 200 words*)

This report describes Aerojet's methods and procedures used to control and administer contractual schedules for the EOS/AMSU-A program. Included are the Master, Intermediate, and Detail Schedules, Critical Path Analysis, and the Total/Program Logic Network Diagrams.

17. Key Words (Suggested by Author(s)) EOS Microwave System		18. Distribution Statement Unclassified — Unlimited	
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2. REPORT DATE
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4. TITLE AND SUBTITLE
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6. AUTHOR(S)
Larry Van Riper

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
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11. SUPPLEMENTARY NOTES
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12a. DISTRIBUTION/AVAILABILITY STATEMENT
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13. ABSTRACT (*Maximum 200 words*)

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14. SUBJECT TERMS
EOS
Microwave System

15. NUMBER OF PAGES
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17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
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